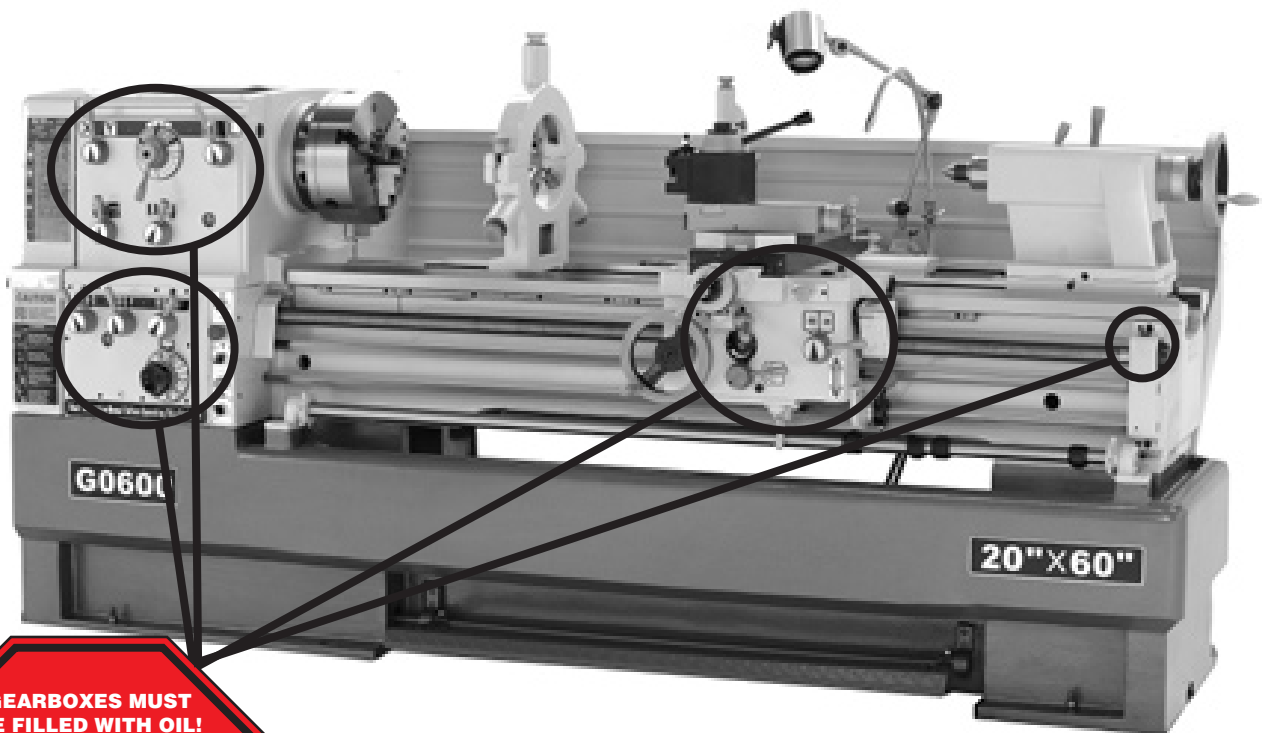




MODEL G0600 20" x 60" BIG BORE LATHE MANUAL INSERT

The Model G0600 lathe is shipped without oil. You must fill the headstock, gearbox, apron, and leadscrew housing with oil, and complete the **Lubrication** procedures outlined in the **MAINTENANCE** section on **Page 52**. If you run this lathe without oil, even for a short period of time, drivetrain parts will be damaged and your lathe warranty will be void. We recommend using ISO 68 or a good grade non-detergent SAE 20W motor oil in your lathe. Make sure to change the oil immediately after lathe break-in.

If you have any questions about this manual insert or machine lubrication and break-in, please contact Grizzly Technical Support at (570) 546-9663 or email techsupport@grizzly.com.



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OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
#CR10603 PRINTED IN CHINA



MODEL G0600

20" x 60" BIG BORE LATHE

OWNER'S MANUAL



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#CR9070 PRINTED IN CHINA



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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INTRODUCTION

Foreword

We are proud to offer the Model G0600 20" x 60" Big Bore Lathe. This machine is part of a growing Grizzly family of fine metalworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

We are pleased to provide this manual with the Model G0600. It was written to guide you through assembly, review safety considerations, and cover general operating procedures. It represents our effort to produce the best documentation possible.

The specifications, drawings, and photographs illustrated in this manual represent the Model G0600 as supplied when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. For your convenience, we always keep current Grizzly manuals available on our website at **www.grizzly.com**. Any updates to your machine will be reflected in these manuals as soon as they are complete. Visit our site often to check for the latest updates to this manual!

Contact Info

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
c/o Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

We stand behind our machines. If you have any service questions or parts requests, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com
Web Site: <http://www.grizzly.com>





MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL G0600 20" X 60" BIG BORE LATHE

Product Dimensions:

Weight5071 lbs.
Length/Width/Height 110-3/4 x 45-1/4 x 51 in.
Foot Print (Length/Width)..... 109-1/4 x 24-3/4 in.

Shipping Dimensions:

Type Wood Frame
Content.....Machine
Weight.....5954 lbs.
Length/Width/Height..... 114 x 45-1/4 x 68-1/2 in.

Electrical:

Switch.....Magnetic with Thermal Overload Protector
Switch Voltage220V
Cord Length 6 ft.
Cord Gauge 8 gauge
Recommended Breaker Size 40 amp
Plug.....No

Motors:

Main

Type TEFC Induction
Horsepower..... 10 HP
Voltage220V
Prewired220V
Phase Three
Amps28A
Speed..... 1725 RPM
Cycle60 Hz
Number Of Speeds 1
Power TransferGearbox
Bearings Shielded and Lubricated

Coolant

Type TEFC Induction
Horsepower..... 1/8 HP
Voltage220V
Prewired220V
Phase Three
Amps0.6A
Speed..... 3450 RPM
Cycle60 Hz
Number Of Speeds 1
Power Transfer Direct Drive
Bearings Shielded and Lubricated



Main Specifications:

Operation Info

Swing Over Bed	20-1/16 in.
Swing Over Gap.....	29 in.
Swing Over Cross Slide	12 in.
Swing Over Saddle	12 in.
Distance Between Centers	59-1/16 in.
Maximum Tool Bit Size	1 in.
Compound Travel	5-1/8 in.
Carriage Travel	56-11/16 in.
Cross Slide Travel.....	12-3/4 in.

Headstock Info

Spindle Bore	3-1/8 in.
Spindle Taper.....	MT#7
Number of Spindle Speeds.....	12
Range of Spindle Speeds	25–1600 RPM
Spindle Type	D1-8 Camlock
Spindle Bearings.....	Tapered Roller

Tailstock Info

Tailstock Travel	7 in.
Tailstock Taper	MT#5
Tailstock Barrel Diameter.....	3 in.

Threading Info

Number of Inch Threads	60
Range of Inch Threads	2–112 TPI
Number of Metric Threads	47
Range of Metric Threads	0.2–14 mm
Number of Modular Threads	39
Range of Modular Threads	0.1–7 MP
Number of Diametrical Threads	50
Range of Metric Threads	4–112 DP
Number of Longitudinal Feeds.....	35
Range of Longitudinal Feeds.....	0.0022–0.0612 in.
Number of Cross Feeds.....	35
Range of Cross Feeds.....	0.00048–0.01354 in.

Dimensions

Bed Width	13-3/4 in.
Leadscrew TPI	4
Leadscrew Diameter	1-9/16 in.
Leadscrew Length.....	84-7/8 in.
Steady Rest Capacity	3/4–6-1/2 in.
Follow Rest Capacity	5/8–3-3/4 in.
Faceplate Size	17-11/16 in.
Feed Rod Diameter.....	15/16 in.
Floor to Center Height	44-5/8 in.

Construction

Base	Cast Iron
Headstock	Cast Iron
Headstock Gears	Flame Hardened Steel
Bed.....	Hardened Ground Meehanite Cast Iron
Body	Cast Iron
Stand.....	Cast Iron
Paint.....	Powder Coated



Other Specifications:

Country of Origin.....China
Warranty.....1 Year
Serial Number Location Machine ID Label

Features:

Hardened and precision ground Meehanite cast iron bed casting
Universal quick change gear box for inch and metric thread, plus modular and diametrical pitches
Hardened and precision ground headstock, quick change and apron gears run in an oil bath
Adjustable apron clutch

Standard Equipment:

12 in. 3-Jaw chuck
14 in. 4-Jaw chuck
17-11/16 face plate
Thread chasing dial
One shot lubrication on apron
4-position auto apron stop
Full length splash guard
Dual inch/metric dials
Quick change tool post and holder
Job and emergency stop button
Foot brake
Centers, service tools, tool box, leveling pads, and manual
Steady rest
Follow rest
Coolant system
Halogen work light



Identification

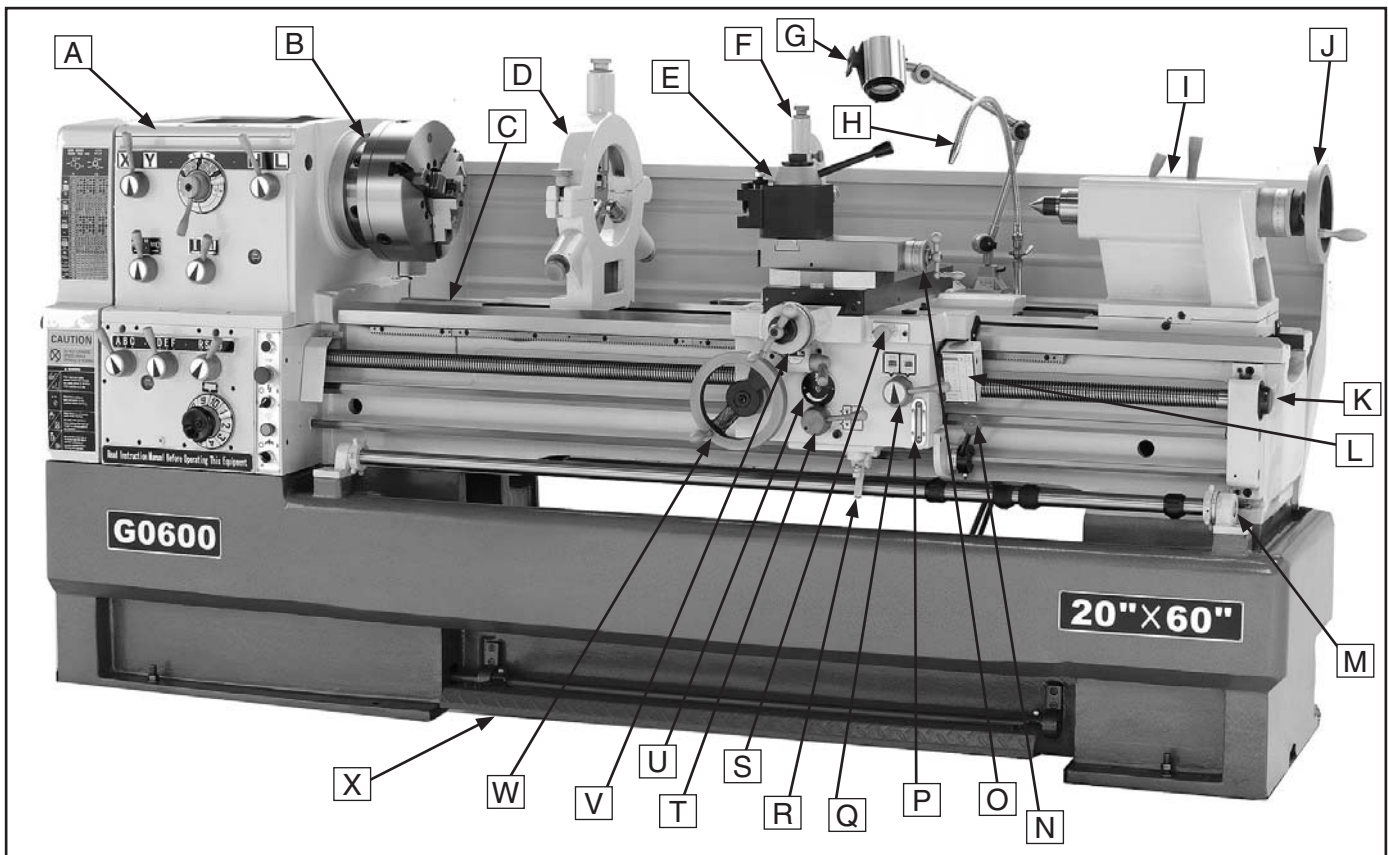


Figure 1. The Model G0600 20" x 60" Big Bore Lathe.

- | | |
|--|--|
| A. Headstock | M. 4-Position Apron Stop Dial |
| B. D1-8 Camlock MT#7 Spindle | N. Spindle Rotation ON/OFF Lever |
| C. Gap Piece | O. Compound Rest Handwheel |
| D. Ball Bearing Style Steady Rest | P. Apron Oil Level Sight Glass |
| E. Quick Change Tool Holder | Q. Halfnut Lever |
| F. Follow Rest | R. Apron Release Arm |
| G. Work Lamp | S. Manual Oil Pump |
| H. Universal Coolant Nozzle | T. Feed Clutch Lever |
| I. Tailstock | U. Feed Clutch Tension Adjustment |
| J. Tailstock Handwheel | V. Cross Slide Handwheel |
| K. Leadscrew Rod Endcap Housing | W. Apron Handwheel |
| L. Thread Dial | X. Brake Pedal |



Headstock Controls

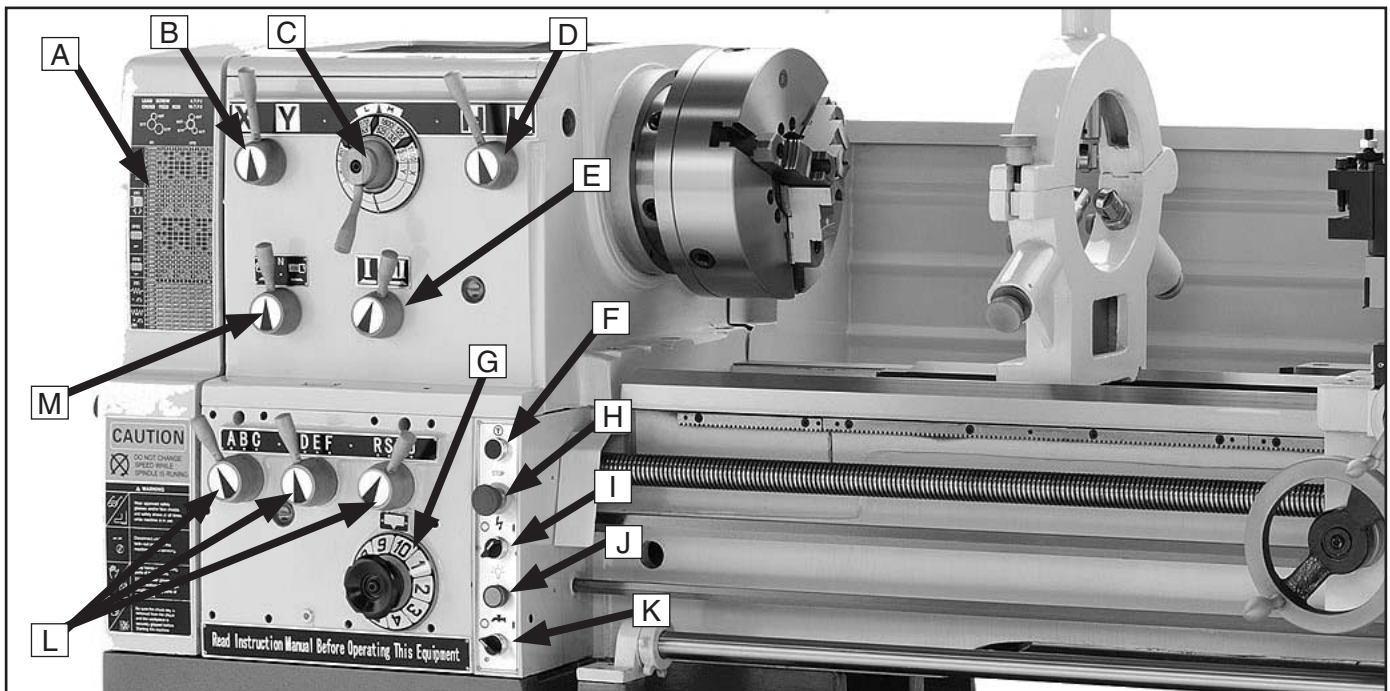


Figure 2. Headstock and gearbox controls.

- A. Cutting Chart:** Used for shifting the lathe headstock and gearbox into the proper gear combinations for threading and feeding operations.
- B. Range Splitting Lever:** Used to select the final spindle speed from the set of high or low range speeds selected by the range lever.
- C. Spindle Speed Dial:** Positions the headstock gears in one of three speed modes. In each mode, there are four spindle speeds. The four speed choices are two speeds in low range, and two speeds in high range. The range lever selects high or low range, and the range splitting lever selects one of the two remaining speeds within that range.
- D. Range Lever:** Used to select a set of high or low range spindle speeds from one of the three spindle speed modes shown on the spindle speed dial.
- E. Gearbox Hi/Lo Lever:** This lever puts the gearbox in high or low range and has no effect on spindle RPM. **I** is Hi range, **II** is low range.
- F. Jog Button:** Turns the spindle motor **ON** while being pressed and held.
- G. Feed/Lead Dial:** Used for setting up feed or threading gearing ratios in conjunction with quick change gearbox levers.
- H. Emergency Stop Button:** Stops all machine functions. Twist clockwise to reset.
- I. Lathe Power Switch:** Turns power **ON/OFF** to the lathe so lathe operations can begin.
- J. Power Light:** Indicates the lathe is energized when illuminated.
- K. Coolant Pump Switch:** Turns coolant pump **ON/OFF**.
- L. Quick Change Gearbox Levers:** Moves the gearbox gears into particular ratios, which then turn the leadscrew and feedrod for threading and power feed operations.
- M. Leadscrew/Feedrod Direction Lever:** Changes the rotation direction of the leadscrew or feedrod so apron or cross feed will move the opposite direction.



SECTION 1: SAFETY

WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

- 1. READ THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.



WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Maintain stability and balance at all times.
23. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.



WARNING

Additional Safety for Metal Lathes

1. **READ AND UNDERSTAND THIS MANUAL BEFORE OPERATING THIS MACHINE. YOUR SAFETY AND THE PROPER USE OF THIS MACHINE IS YOUR RESPONSIBILITY.**
2. **CLEARING CHIPS.** Do not clear chips by hand or while the lathe is turning.
3. **CHUCK KEY SAFETY.** Always remove chuck key. Never walk away from the lathe with the key in the chuck.
4. **TOOL SELECTION.** Always select the right cutter for the job, and make sure they are sharp. The right tool decreases strain on the lathe components and provides a better finish.
5. **SECURING THE WORKPIECE.** Make sure workpiece is properly held in chuck before starting lathe. A workpiece thrown from the chuck may cause severe injury to yourself or others.
6. **CHANGING GEARS.** Turn lathe **OFF** before changing speeds. The spindle must be brought to a complete stop before changing gears.
7. **SUPPORT LONG STOCK.** Stock extending beyond the headstock **MUST** be supported. Unsupported stock will begin to whip and cause serious injury to operator/ bystanders and cause damage to the lathe. Always turn supported long stock at slow RPM's.
8. **PINCH HAZARDS.** Protect your hands and the precision ground ways. Always use a chuck cradle or piece of plywood over the ways of the lathe when servicing chucks.
9. **LATHE MAINTENANCE.** Never operate the lathe with damaged or worn parts. Maintain your lathe in proper working condition. Perform routine inspections and maintenance promptly when needed. Put away adjustment tools after use.
10. **SAFETY CLEARANCES.** Make sure workpiece has adequate clearance before starting machine. Check tool and tool post clearance, chuck clearance, and saddle clearance before starting the lathe.
11. **RATES.** Always use the appropriate feed and speed rates.
12. **STOPPING LATHE.** Never attempt to slow or stop the lathe chuck by using your hand.
13. **ATTENDANCE.** Never walk away from the lathe while it is running. An unsupervised lathe that is running invites accidents.
14. **LONG HAIR.** Tie up long hair. Long hair poses a risk of entanglement with moving parts.
15. **AUTOMATIC FEEDS.** Release any automatic feeds after completing a job.
16. **TURNING SPEEDS.** Select the turning speed appropriate for the type of work, material, and tool bit. Allow the lathe to gain full speed before beginning a cut.
17. **MOTOR DIRECTION.** Never reverse motor direction while the lathe is in motion.
18. **GUARDS.** Make sure all guards are in place and working properly.
19. **TOOL POST CLEARANCE.** Adjust tool post to provide proper support for the turning tool you will be using. Test tool post clearance by rotating workpiece by hand before turning lathe **ON**.
20. **CRASHES.** Make sure no part of the tool, tool holder, compound slide, cross slide, or carriage will contact the chuck during operation.



Glossary of Terms

The following is a list of common definitions, terms and phrases used throughout this manual as they relate to this lathe and metalworking in general. Become familiar with these terms for assembling, adjusting or operating this machine. Your safety is VERY important to us at Grizzly!

Arbor: A machine shaft that supports a cutting tool.

Backlash: Wear in a screw or gear mechanism that may result in slippage, vibration and loss of tolerance.

Collet: A conical shaped split-sleeve bushing that holds round or rectangular tool and/or workpieces by their outside diameter.

Cross slide: Movement of cutting tool across the end of the workpiece.

Cross Slide: A fixture attached to the lathe carriage that holds the compound rest and can be moved in and out.

Cutting Speed: The distance a point on a cutter moves in one minute, expressed in meters or feet per minute.

Dial Indicator: An instrument used in setup and inspection work that shows on the amount of error in size or alignment of a part.

Facing: In lathe work, cutting across the end of a workpiece, usually to machine a flat surface.

Feed: The movement of a cutting tool into a workpiece.

Fixture: A device that securely holds the workpiece in place during cutting operation as opposed to a **Jig** which is used to hold and guide a workpiece through an operation.

Gib: A tapered wedge located along a sliding member to take up wear or to ensure a proper fit.

Headstock: The major lathe component that houses the spindle and motor drive system to turn the workpiece.

Lathe Center: A lathe accessory with a 60° point which is inserted into the headstock or tailstock of the lathe and is used to support the workpiece.

Leadscrew: The long screw that is driven by the end gears and supplies power to the carriage.

Spindle: The revolving shaft that holds and drives the workpiece or cutting tool.

Tailstock: A moveable fixture opposite of the headstock on a lathe that has a spindle used to support one end of a workpiece and for holding tools.

Toolpost: The part of the compound rest that holds the tool holder.

Turret: A machine fixture that holds multiple tools and can be revolved and indexed to position.

Ways: The precision machined and flat tracks on a lathe on which the carriage and tailstock slide.



SECTION 2: CIRCUIT REQUIREMENTS

220V 3-Phase Operation

WARNING

Serious personal injury could occur if you connect the machine to the power source before you have completed the set up process. **DO NOT** connect the machine to the power source until instructed to do so.

Full Load Amperage Draw

G0600 10 HP 220V 3-Phase.....28 Amps

Circuit Requirements

We recommend connecting your machine to a dedicated and grounded circuit that is rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. **If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, consult a qualified electrician.**

Minimum Circuit.....40 Amp

220V Connection Type

For 220V 3-phase connection of this lathe, we recommend hardwiring your machine to a power supply box with a safety shutoff. A qualified electrician should determine the best cord to use in your environment.

G0600 220V 3-Phase.....Hardwire

Grounding

In the event of an electrical short, grounding reduces the risk of electric shock. The grounding wire in the power cord must be properly connected to the grounding prong on the plug; likewise, the outlet must be properly installed and grounded. All electrical connections must be made in accordance with local codes and ordinances.

Extension Cords

We do not recommend the use of extension cords. Instead, arrange the placement of your equipment and the installed wiring to eliminate the need for extension cords.



WARNING

Electrocution or fire could result if this machine is not grounded correctly or if your electrical configuration does not comply with local and state codes. **Ensure compliance by checking with a qualified electrician!**

Phase Converter

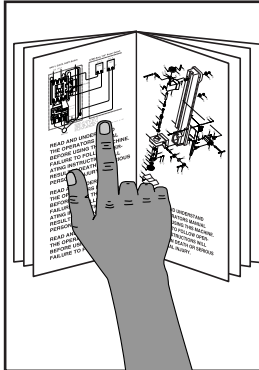
If your lathe is connected to a phase converter for 3-phase power, the power from the manufactured power leg (sometimes called the wild wire or manufactured leg) can fluctuate.

Make sure that when you connect the lathe to the phase converter that you connect the "Wild Wire" or the "Manufactured Leg" from the phase converter to the lathe input lead L3. Otherwise, your lathe may not start properly, and magnetic switch chatter and transformer damage will occur.



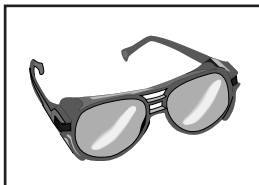
SECTION 3: SETUP

Setup Safety



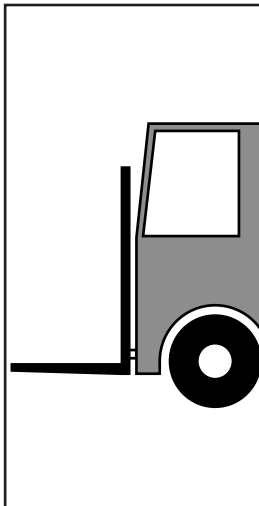
!WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!



!WARNING

Wear safety glasses during the entire setup process!



!WARNING

The Model G0600 is an extremely heavy machine. Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance and power equipment when moving the shipping crate and removing the machine from the crate.

Items Needed for Setup

The following items are needed to complete the setup process, but are not included with your machine:

Description	Qty
• Fork Lift or Crane (5000 lb capacity)	1
• Lifting Straps (5000 lb capacity each)	2
• Safety Glasses (for each person)	1
• Helper for Moving	1
• Solvent for Cleaning	1
• Shop Rags for Cleaning	1

Unpacking

The Model G0600 was carefully packed when it left our warehouse. If you discover the machine is damaged after you have signed for delivery, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, you should inventory the contents.



Inventory

In the event that any nonproprietary parts are missing (e.g. a nut or a washer), we would be glad to replace them, or for the sake of expediency, replacements can be obtained at your local hardware store.

After you have inspected your lathe and all the parts have been removed from the crate, you should have the following items:

Major Inventory 1: (Figure 3)	Qty
A. Steady Rest Assembly	1
B. 18" Faceplate	1
C. 12" Three Jaw Chuck (On Lathe)	1
D. 14" Four Jaw Chuck	1
E. Four-Jaw Chuck Lifting Eye	1
F. Four Jaw Chuck Key	1
G. D1-8 Camlock Stud Set	6
H. Quick Change Tool Holders	2
I. Cast Iron Foot Pads	6
J. Follow Rest Assembly	1

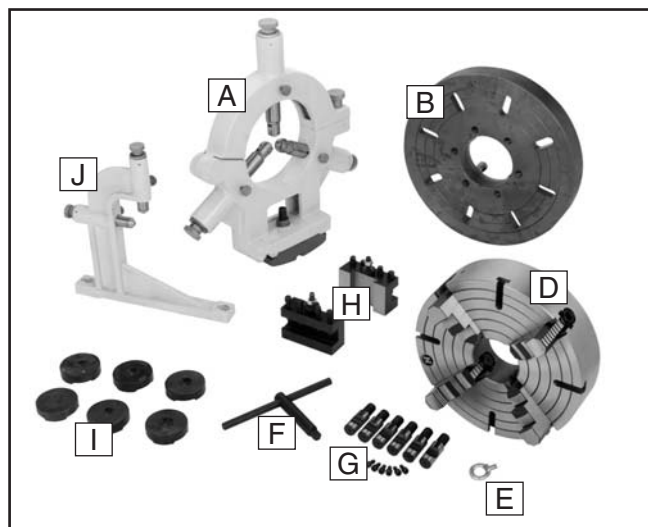


Figure 3. Major item inventory.

Tool Box Inventory: (Figure 4)	Qty
K. Tool Box	1
L. Oil Bottle	1
M. Carriage Lock and Tool Holder Wrench	1
N. Three-Jaw Chuck Wrench	1
O. Gap Pin Puller	1
P. Combo Wrench Set 6-30mm	1EA
Q. Hex Wrench Set 1.5-10mm	1EA
R. #2 Screw Driver Set, Phillips & Flat	1EA
S. MT#5 Dead Centers	2
T. MT#7-5 Tapered Spindle Sleeve	1
U. 42-Tooth Metric Change Gear	1
V. 66-Tooth Metric Change Gear	1
W. Cap Screws M6-1 x 25	3
X. Longitudinal and Cross Feed Handle	1EA
Y. Adjustable Foot Pad Studs w/Nuts	6
Z. Gray and Green Spot Paint	1 EA

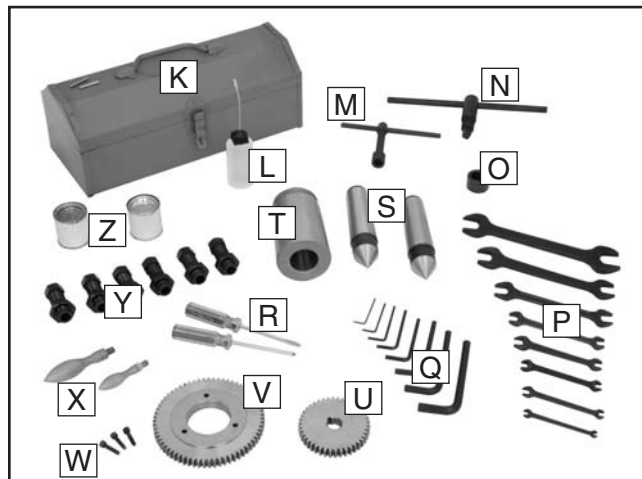


Figure 4. Tool Box Inventory.

NOTICE

Some hardware/fasteners on the inventory list may arrive pre-installed on the machine. Check these locations before assuming that any items from the inventory list are missing.



Hardware Recognition Chart

USE THIS CHART TO MATCH UP
HARDWARE DURING THE ASSEMBLY
PROCESS.

MEASURE BOLT DIAMETER BY PLACING INSIDE CIRCLE

○ #10

○ 1/4"

○ 5/16"

○ 3/8"

○ 7/16"

○ 1/2"

4mm ○

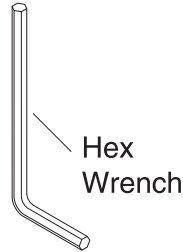
6mm ○

8mm ○

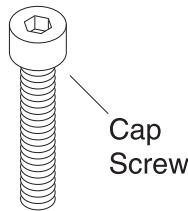
10mm ○

12mm ○

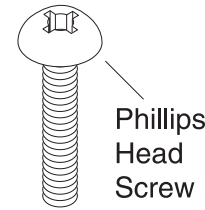
16mm ○



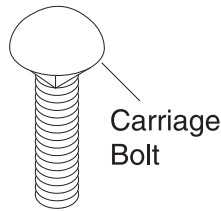
Hex
Wrench



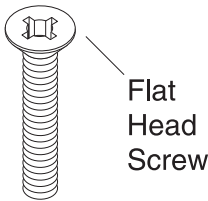
Cap
Screw



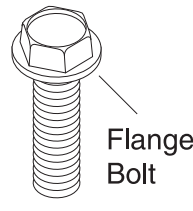
Phillips
Head
Screw



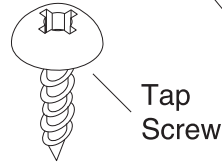
Carriage
Bolt



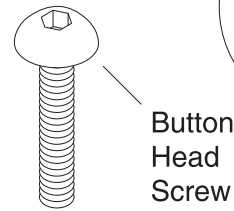
Flat
Head
Screw



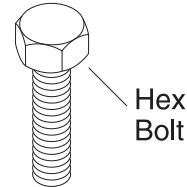
Flange
Bolt



Tap
Screw



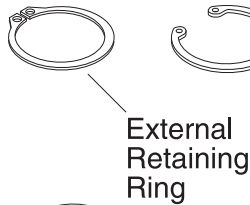
Button
Head
Screw



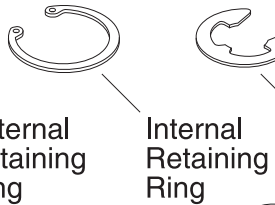
Hex
Bolt



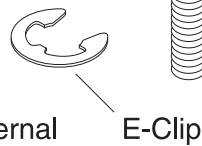
Setscrew



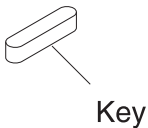
External
Retaining
Ring



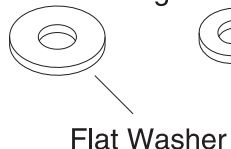
Internal
Retaining
Ring



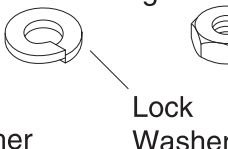
E-Clip



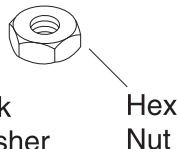
Key



Flat Washer

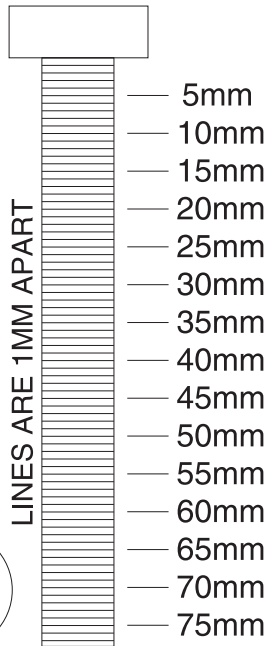


Lock
Washer



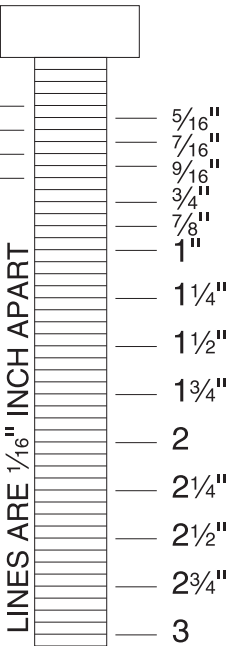
Hex
Nut

LINES ARE 1MM APART



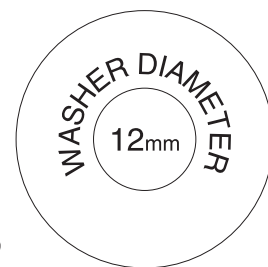
5mm
10mm
15mm
20mm
25mm
30mm
35mm
40mm
45mm
50mm
55mm
60mm
65mm
70mm
75mm

LINES ARE 1/16" INCH APART

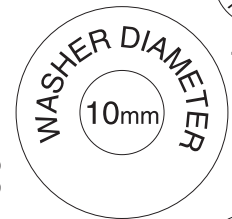


1/4"
3/8"
1/2"
5/8"
5/16"
7/16"
9/16"
3/4"
7/8"
1"
1 1/4"
1 1/2"
1 3/4"
2
2 1/4"
2 1/2"
2 3/4"
3

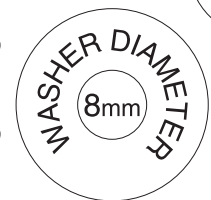
WASHERS ARE MEASURED BY THE INSIDE DIAMETER



WASHER DIAMETER
12mm



WASHER DIAMETER
10mm



WASHER DIAMETER
8mm



WASHER DIAMETER
4mm



WASHER DIAMETER
6mm



WASHER DIAMETER
3/8"



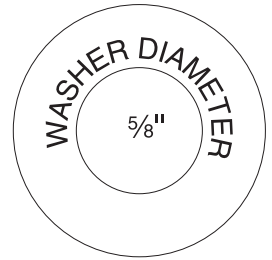
WASHER DIAMETER
5/16"



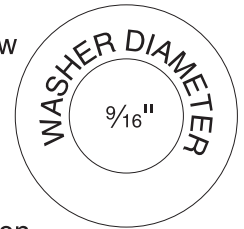
WASHER DIAMETER
1/4"



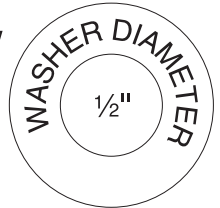
#10



WASHER DIAMETER
5/8"



WASHER DIAMETER
9/16"



WASHER DIAMETER
1/2"



WASHER DIAMETER
7/16"



Site Considerations

Floor Load

Refer to the **Machine Data Sheet** for the weight and footprint specifications of your machine. Some floors may require additional reinforcement to support both the machine and operator.

Working Clearances

Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your new machine. See **Figure 5** for the minimum working clearances.

	<p>⚠ CAUTION</p> <p>Unsupervised children and visitors inside your shop could cause serious personal injury to themselves. Lock all entrances to the shop when you are away and DO NOT allow unsupervised children or visitors in your shop at any time!</p>
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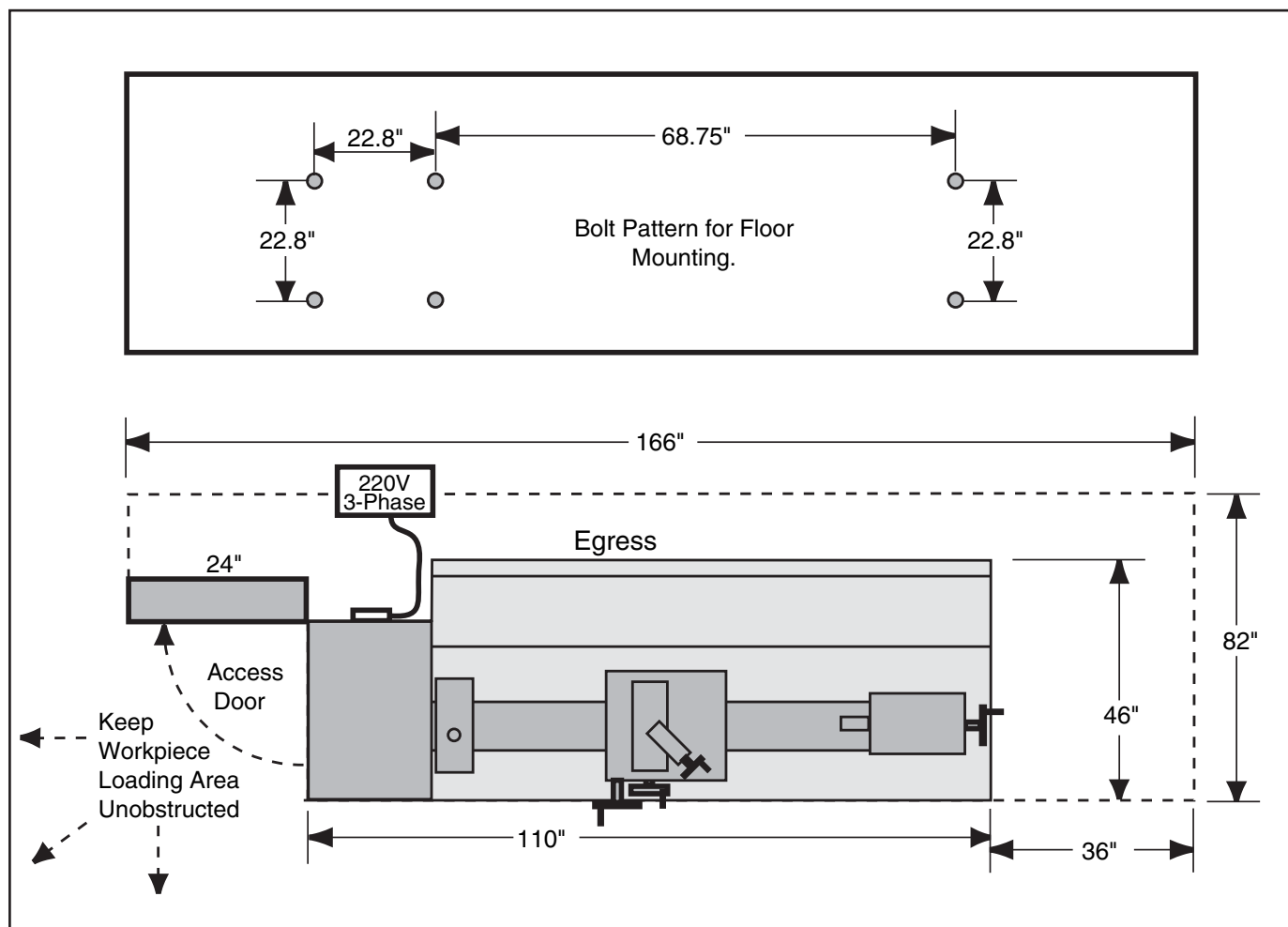


Figure 5. Minimum working clearances.



Lifting & Moving the Lathe



This lathe can be placed on the included leveling studs and cast-iron feet (**Figure 6**). If the lathe must be secured to the floor refer to a professional machine installer for options. In either case, the lathe must be sitting flat at each mounting point, and the ways must be perfectly level. The bed cannot be twisted or bent. If a misalignment condition arises, shim the lathe where it mounts to the floor, or adjust the feet studs until the bed and ways are in alignment as shown by precision machinist's levels.



Figure 6. Leveling feet and screws.

When lifting, you must move the carriage and tailstock to the right and lock into place as shown in **Figure 7** to provide counter-balance.

Make sure the slings or chains are routed so when the lathe is lifted and the chains or straps are tight, the control rod, lead screw, or feed rod are not bent. Remember, the headstock carries most of the weight of this machine (see **Figure 7**) for safe chain or strap routing and connection.

Double check weight ratings and connections of the lifting system, cables, chains pins, and clevis links before lifting and moving the lathe to your prepared location. Do not attempt to lift or move this lathe if you are unsure about any aspect. Seek assistance from a professional rigger if required.

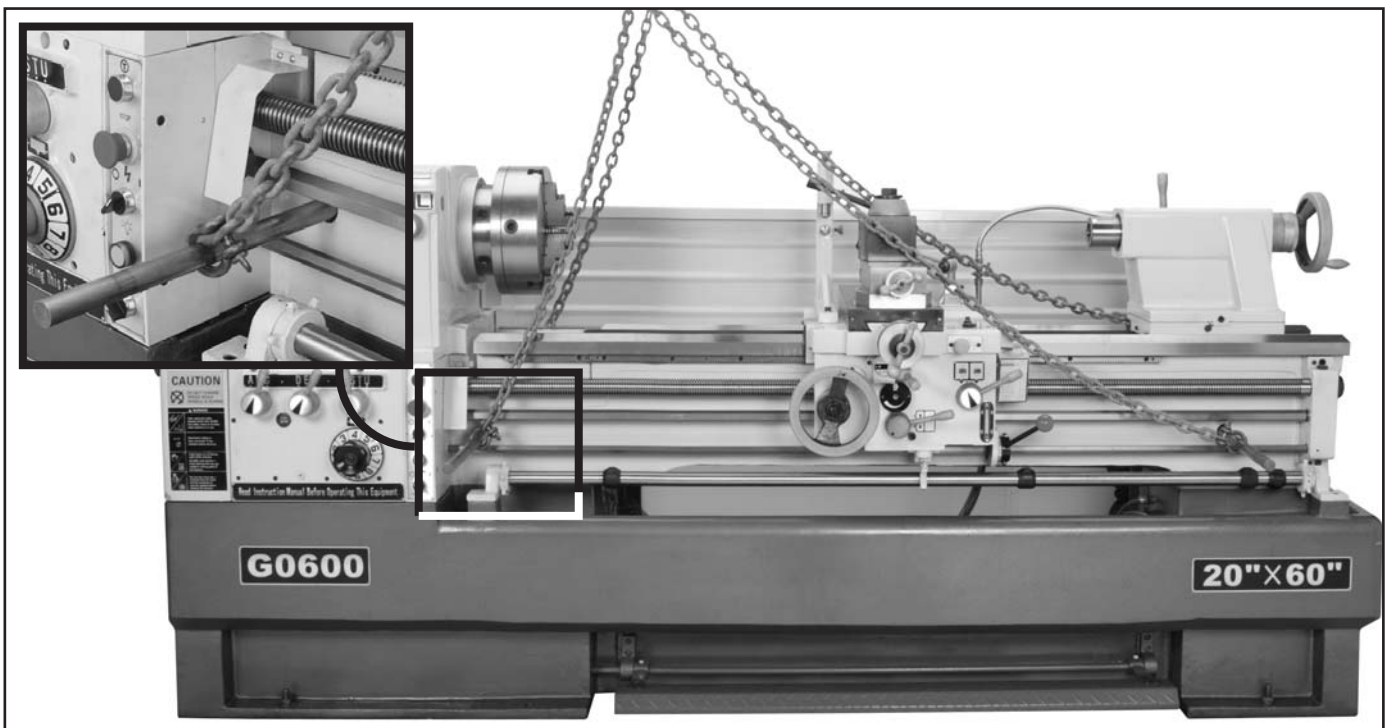



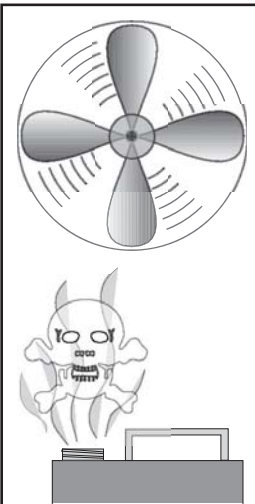
Figure 7. Lifting eye locations for the G0600 lathe.



Cleanup

The unpainted surfaces are coated with a waxy oil to protect them from corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser such as Grizzly's G7895 Degreaser. To clean thoroughly, some parts may need to be removed. **For optimum performance from your machine, make sure you clean all moving parts or sliding contact surfaces that are coated.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner, as they will damage painted surfaces and strip metal should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

	<p>! WARNING</p> <p>Gasoline and petroleum products have low flash points and could cause an explosion or fire if used to clean machinery. DO NOT use gasoline or petroleum products to clean the machinery.</p>
--	--

	<p>! CAUTION</p> <p>Many of the solvents commonly used to clean machinery can be toxic when inhaled or ingested. Lack of ventilation while using these solvents could cause serious personal health risks or fire. Take precautions from this hazard by only using cleaning solvents in a well ventilated area.</p>
---	--



Test Run

NOTICE

Check all oil levels and lubrication points before starting lathe. Premature wear will result on moving parts not lubricated!

Once you have read this manual and taken all safety precautions, you are ready to complete this test run. If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop running the machine immediately, and refer **Troubleshooting** on **Page 56** for a solution.

If you still cannot remedy a problem, contact our Tech Support at (570) 546-9663 for assistance.

To setup the lathe for the test run:

1. DISCONNECT THE LATHE FROM POWER!
2. Make sure that the belts are adjusted (refer to **V-Belt Service** on **Page 62**).
3. Make sure that the brake linkage is adjusted (refer to **Brake and Switch** on **Page 62**).
4. Move the leadscrew/feedrod direction lever to neutral (**Figure 8**).

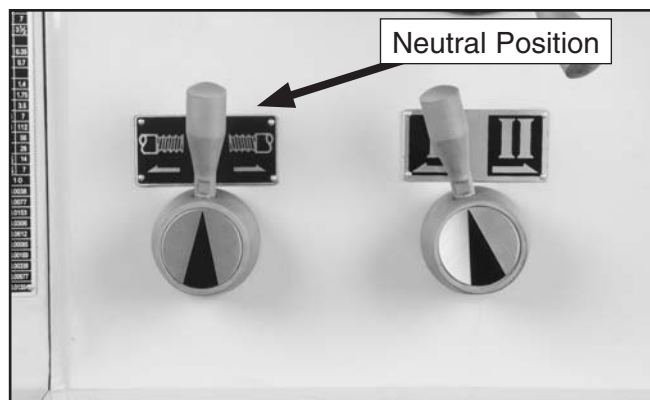


Figure 8. Leadscrew/feedrod direction lever.

5. Make sure that the headstock, gearbox, apron, and lead screw reservoir oil levels are full. Follow all lubrication procedures highlighted in **Lubrication** in the **MAINTENANCE** section on **Page 51** of this manual.

6. Make sure that the chuck and jaws are secure refer to (**Chuck and Faceplate Mounting** on **Page 24** and **Reversing Jaws** on **Page 27**).
7. Fill the coolant pump reservoir, and switch the pump switch to the **OFF** position (refer to **Coolant System** on **Page 55**).
8. Rotate the red EMERGENCY stop switch knob clockwise until it pops out.
9. Disengage the halfnut and the power feed levers (**Figure 9**).

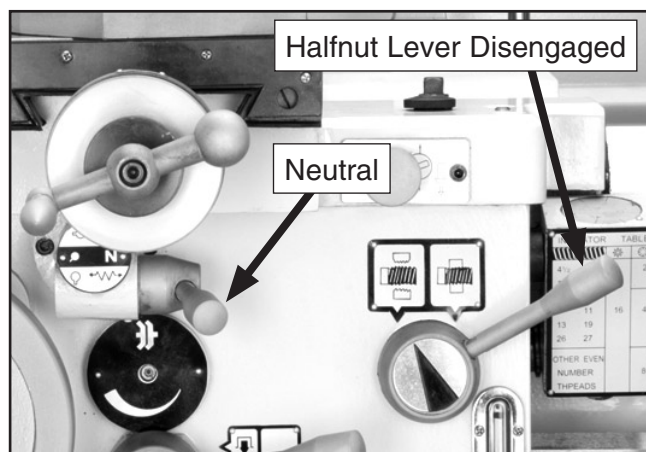


Figure 9. Power feed and halfnut levers.

10. Move the spindle **ON/OFF** lever to the neutral position.
11. At the rear of the headstock, turn the master power switch to the 1 position (**Figure 10**).



Figure 10. Master power switch.



12. Make sure that all bystanders are out of the way, no tools are in the way, and the chuck key is removed from the chuck.
13. Put on safety glasses, tieback longhair, sleeves and loose clothing.
14. Set the lathe to the slowest RPM. Refer to **Spindle Speed** on **Page 35**.

To test run the lathe:

Note: *If any of these tests fail, stop the lathe immediately and refer to the **Troubleshooting** section on **Page 56** for corrections.*

1. Turn the work lamp **ON** and **OFF**.
2. Point the coolant nozzle into the chip pan, turn the pump switch **ON**, make sure coolant flows, and then turn the pump switch **OFF**.
3. Move the spindle ON/OFF lever (**Figure 11**) downward to start the lathe.

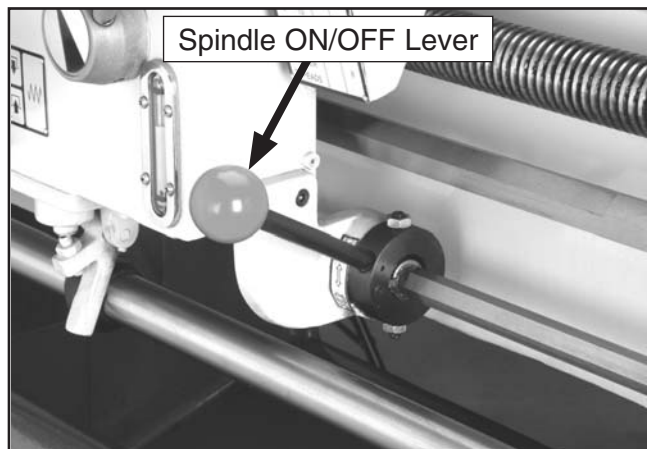


Figure 11. Spindle ON OFF Lever.

4. Observe the oil pump tube sight glass, and make sure oil is being pumped out of the tube as seen through the sight glass (**Figure 12**). If no oil is seen, shut down the lathe immediately.



Figure 12. Oil pump sight glass.

5. Observe the chuck for rotation. It should be rotating toward you at the top. If it is rotating away from you, then you must complete the **Changing Motor Rotation** procedure on **Page 21**. Then repeat the entire **Test Run** procedure.
6. Observe and listen for any abnormal noises or vibration. The lathe should run smoothly with little or no vibration or rubbing noises.
7. Push the foot brake, and the lathe should come to a quick stop. If it has no effect on the lathe, move the spindle ON/OFF lever to the **OFF** position to stop the lathe.
8. Start the lathe again, and push the EMERGENCY Stop switch and the lathe should stop.
9. Complete the **Spindle Brake In** procedure on **Page 22**. The test run is complete.



Changing Motor Rotation

If the chuck turns away from you at the top of the chuck when the spindle lever is in the down position, but all levers are in the correct position for normal spindle rotation, motor rotation must be reversed. By swapping the position of two of the three motor power supply wires.

To change the direction of the motor:

1. DISCONNECT LATHE FROM POWER!
2. Remove the main electrical box cover (**Figure 13**) at the rear of the lathe.

—If your lathe is connected to 220V 3-phase supplied by the power company, swap any two of the 1L1, 1L2, or 1L3 input wires.

—If your lathe is connected to a phase converter for 3-phase power, swap 1L1 and 1L2 input wires (**Figure 13**). 1L3 is part of the transformer input circuit (terminals 21 or 22) and should not be swapped. This is because the "Wild Wire" or the "Manufactured Leg" from the phase converter must NOT be connected to the transformer input circuit or transformer and contactor damage will occur.

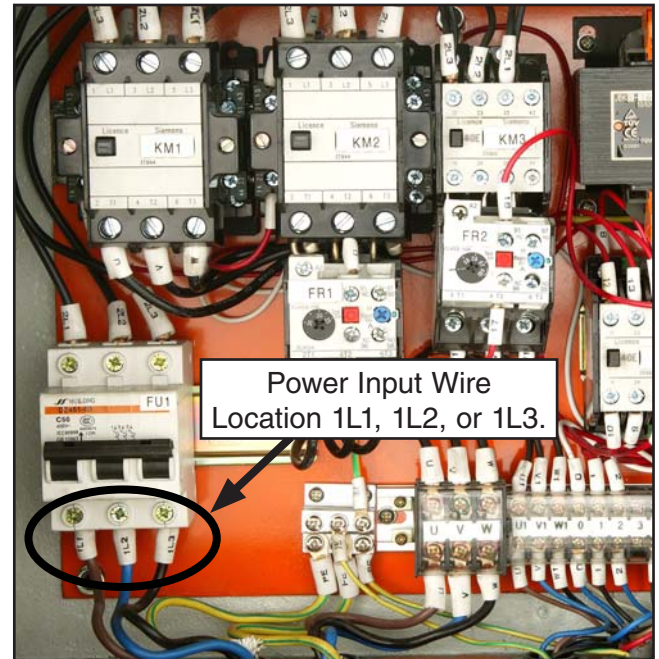
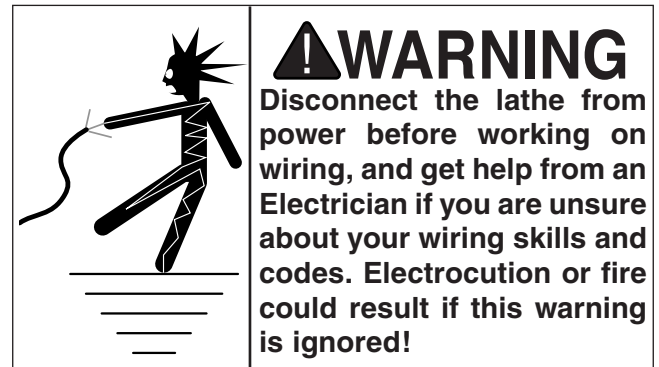


Figure 13. Motor power supply junction block.



Apron and Spindle Break-in

NOTICE

Failure to follow break-in procedures will likely cause rapid deterioration of bearings and other related parts.

It is essential to closely follow the proper break-in procedures to ensure trouble free performance. Complete this process once you have familiarized yourself with all instructions in this manual and completed the test run.

To break-in the spindle:

1. Make sure that the headstock, gearbox, apron, and lead screw and feed rod oil bath oil levels show full. Follow all lubrication procedures highlighted in **Lubrication** in the **MAINTENANCE** section on **Page 51** of this manual.
2. Make sure there are no obstructions around or underneath the chuck and that the chuck is secured to the spindle. Refer to **Chuck and Faceplate Mounting** on **Page 24**.
3. Set the spindle speed to the lowest RPM; refer to section **Setting RPM** on **Page 35**.
4. Move the headstock and gearbox levers so the feedrod and leadscrew are engaged. Refer to section **Using the Thread Cart** on **Page 40** for lever combinations.
5. Make sure that the halfnut lever is disengaged, and that the apron and cross feed feed lever is in neutral. Refer to section **Power Feed** on **Page 37** for lever combinations.
6. Turn the lathe **ON** and let it run for a minimum of 10 minutes.
7. Turn the lathe **OFF**, shift the levers to the next highest RPM and repeat **Steps 5-6** for each RPM setting in both directions. **DO NOT LEAVE THE AREA!**

Spindle Balancing

After the spindle has been broken in, or if the lathe has been used for a considerable amount of time, you should adjust the spindle weights to minimize spindle vibration.

To minimize spindle vibration:

1. Run the lathe for five minutes on the fastest RPM.
2. **DISCONNECT LATHE FROM POWER!**
3. Open the side cover, loosen the counter weight set screws (**Figure 14**), and reposition one or both counterweights to a new position around the circumference of the spanner nut.
4. Close the side cover, reconnect to power, restart the lathe, and run at 1600 RPM.
5. Place your hand on the headstock cover and feel for harmonic vibration.
6. Repeat **Steps 2** through **5** until any vibration is reduced to its minimum.
7. Now, repeat **Steps 2** through **5** at 1100 RPM until any vibration is reduced to its minimum.

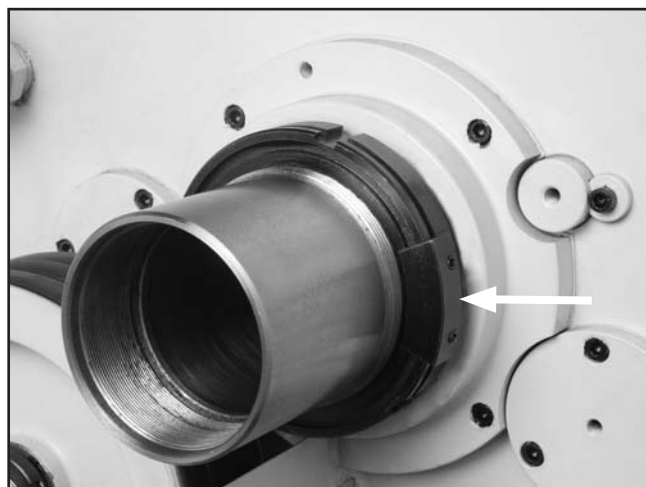


Figure 14. Spindle counterweights.



SECTION 4: OPERATIONS

Operation Safety

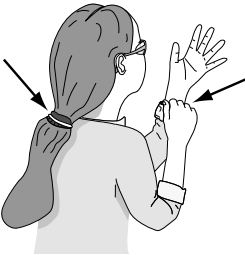
!WARNING

Damage to your eyes, lungs, and ears could result from using this machine without proper protective gear. Always wear safety glasses, a respirator, and hearing protection when operating this machine.



!WARNING

Loose hair and clothing could get caught in machinery and cause serious personal injury. Keep loose clothing and long hair away from moving machinery.



General

NOTICE

Failure to follow test-run and brake-in procedures will likely cause rapid deterioration of bearings and other related parts.

The Model G0600 will perform many types of operations that are beyond the scope of this manual. Many of these operations can be dangerous or deadly if performed incorrectly.

The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. **If at any time you are experiencing difficulties performing any operation, stop using the machine!**

If you are an inexperienced operator, we strongly recommend that you read books, trade articles, or seek training from an experienced lathe operator before performing any unfamiliar operations. **Above all, your safety should come first!**



Chuck and Faceplate Mounting

The Model G0600 is shipped with the 3-jaw chuck installed. This is a scroll-type chuck, meaning that all three jaws move in unison when adjusted.

The 4-jaw chuck, on the other hand, features independent jaws. This chuck is used for square or unevenly-shaped stock.

If either chuck cannot hold your workpiece, the cast-iron faceplate has slots for T-bolts that hold standard or custom clamping hardware. With the correct clamping hardware, this faceplate will hold non-cylindrical parts such as castings.

The chucks and faceplate have a D-8 Camlock mount. Please note that there are lines stamped into the cam and on the chuck body. A chuck key is used to turn the locking cams (**Figure 16**) to secure/unsecure the chuck/faceplate.

WARNING

The chuck is heavy and is awkward to handle. Always protect the ways when removing or installing a chuck, and make sure that you make a support cradle (Figure 15), lifting hoist, or that you have an assistant when installing or removing chucks. Ignoring this warning may lead to a severe crushing or amputation injury!

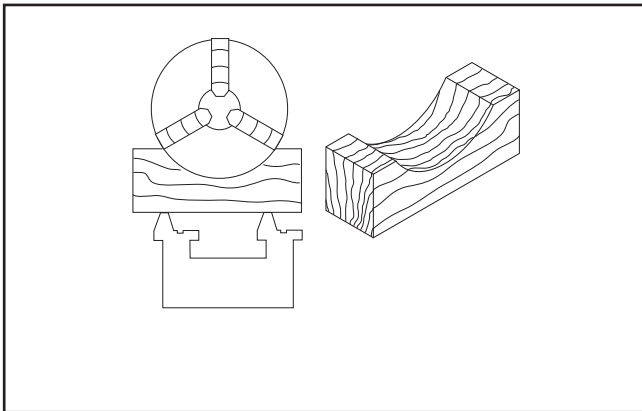


Figure 15. Wooden chuck support cradle.

To remove a chuck or faceplate:

1. DISCONNECT LATHE FROM POWER!
2. Place a piece of plywood across the lathe ways and position it just under the chuck. The board should be at least 8" wide and 10" long.
3. Turn a cam with the chuck key until the cam lock mark aligns with the cam release datum line shown in **Figure 16**.

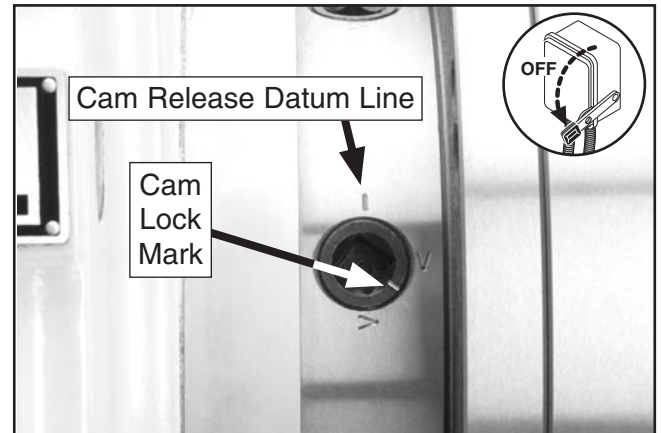


Figure 16. Cam and lock marks.

4. Unlock the other cams in the same manner. Make sure to support the chuck as you align the last cam. The chuck may come off at this point, so **it is important that the weight is supported by an adequate chuck cradle.**
5. Remove the chuck key.
 - If the chuck is still tight on the spindle, tap the back of the chuck with a rubber or wood mallet while supporting the bottom of the chuck.
 - If the chuck does not immediately come off, rotate the spindle approximately 60° and tap again. Make sure all the marks on the cams and spindle are in proper alignment.



To install a chuck or faceplate:

1. DISCONNECT LATHE FROM POWER!
2. Place a piece of plywood across the lathe ways and position it just under the chuck.
3. With the help of a hoist or with an assistant, place the chuck on the cradle.

Note: If installing the 4-jaw chuck, use the provided lifting eye (**Figure 17**) to attach a lifting cable or chain.

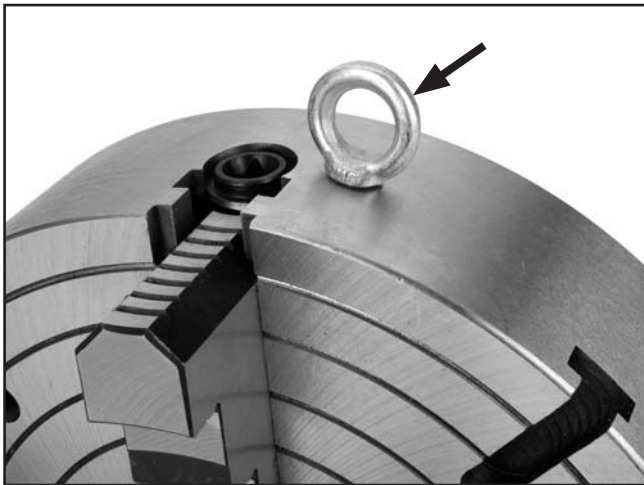


Figure 17. Lifting eye.

4. Make sure the chuck taper and spindle taper mating surfaces are perfectly clean.
5. Inspect and make sure that all camlock studs are undamaged, are clean and lightly oiled, and that the camlock stud cap screws are in place and snug.

NOTICE

Never install a chuck or faceplate without having the camlock cap screws in place or fully tightened. If you ignore this notice, once installed the chuck may never be able to be removed since the camlock studs will turn with the camlocks and never release.

6. Align the chuck-to-spindle timing marks (**Figure 19**), and slide the chuck onto the spindle.
7. Turn a camlock with the chuck key until the cam line falls between the "V" marks **Figure 18**.

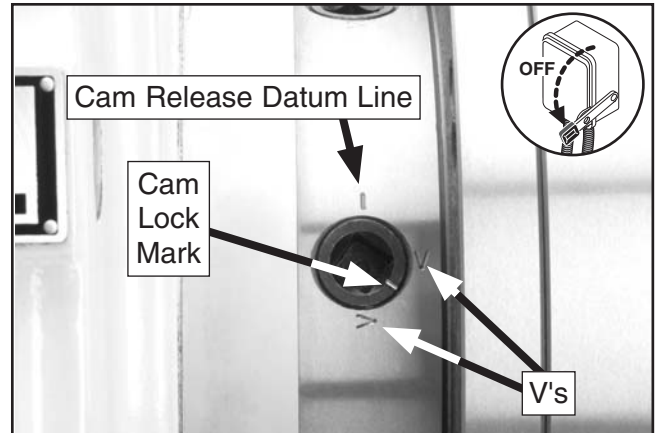


Figure 18. Cam and lock marks.

8. Lock the other cams in a star pattern so the chuck is drawn up evenly on all sides without any chance of misalignment.

Note: If any of the cam lock marks (**Figure 18**) do not fall between the "V" marks when the cam lock is tight, you must adjust the offending camlock stud as discussed in **Camlock Stud Adjustment on Page 26**.

9. Remove the chuck key.



Camlock Stud Adjustment

When fitting a chuck or face plate with camlock studs, or when mounting a new chuck or faceplate, it may be necessary to adjust the camlock studs.

In order to properly install or adjust one or more camlock studs, you must remove a stud locking cap screw, then thread the camlock stud in or out until the line on the side of the stud is flush with the top of the chuck casting (**Figure 19**). This is an initial adjustment.

When you place the chuck onto the lathe spindle, you may find that one or more camlocks do not fully point between the "V" marks on the chuck.

If this is the case, you will have to remove the chuck and fine-tune the camlock stud adjustment. See **Figure 19** for which direction to turn the camlock studs.

Once you have adjusted the camlock studs, install the chuck or faceplate as outlined in "To install chuck or faceplate" on **Page 25**.

NOTICE

Never install a chuck or faceplate without having the camlock cap screws in place or fully tightened. If you ignore this notice, the chuck may never be able to be removed since the camlock studs will turn with the camlocks and never release.

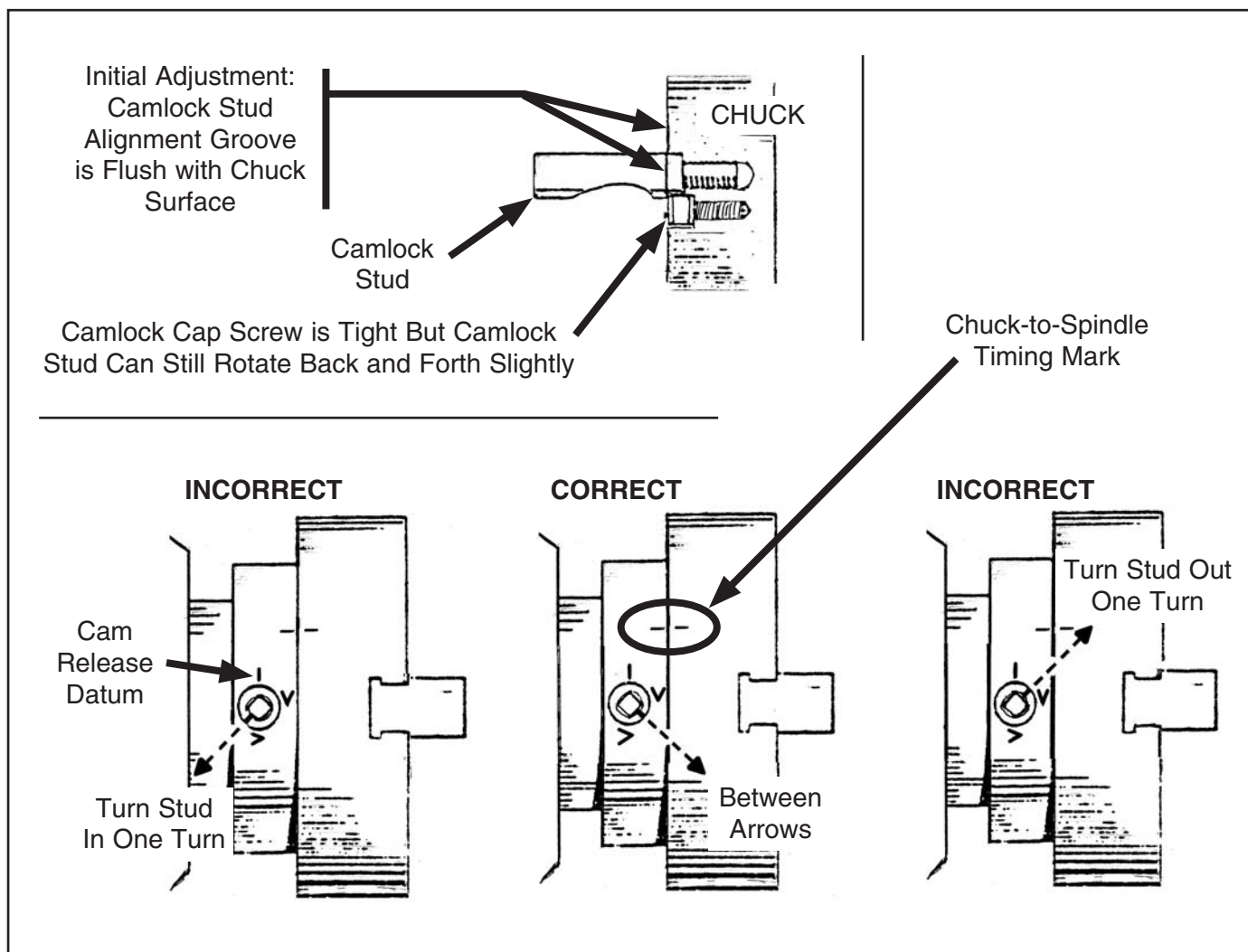


Figure 19. Camlock stud alignment.



Reversing Jaws

To reverse the jaws:

1. DISCONNECT LATHE FROM POWER!
2. Unbolt, then flip the jaw as shown in **Figures 20-23**, then re-tighten.



Figure 20. Reversing jaw step 1.

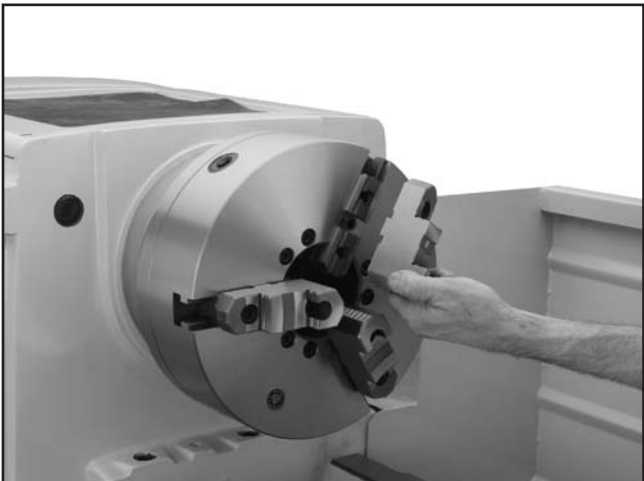


Figure 21. Reversing jaw step 2.

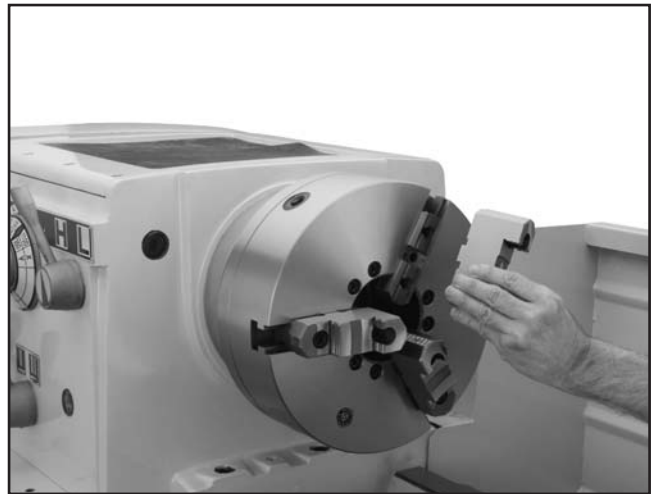


Figure 22. Reversing jaw step 3.



Figure 23. Reversing jaw step 4.

3. Repeat these steps for the other two jaws.



Gap Removal

Your lathe has a gap section below the spindle that can be removed for turning large diameter parts. This gap was installed, then ground at the factory during lathe assembly for precise fit and alignment. Factors during the remaining assembly apply additional forces to the gap; therefore, replacing the gap to the original position will be very difficult. **We don't recommend removing the gap. Reinstallation to exact factory alignment is nearly impossible. The only option is to then leave the gap out.**

To remove the gap:

1. Remove four cap screws from the bottom of the gap and two from the ends of the ways (see **Figure 24**).



Figure 24. Lathe gap and pin puller setup.

2. Remove the set screw plug, and assemble an M6-1 x 30 cap screw, 6mm flat washer, and the gap pin puller hub shown in **Figure 24**.
3. Thread the cap screw into the threaded hole and tighten until the pin is pulled free of the gap and bed.
4. Repeat on the remaining pin.
5. Tap the outside of the gap with a dead blow hammer to loosen, and remove the gap section.

Tailstock

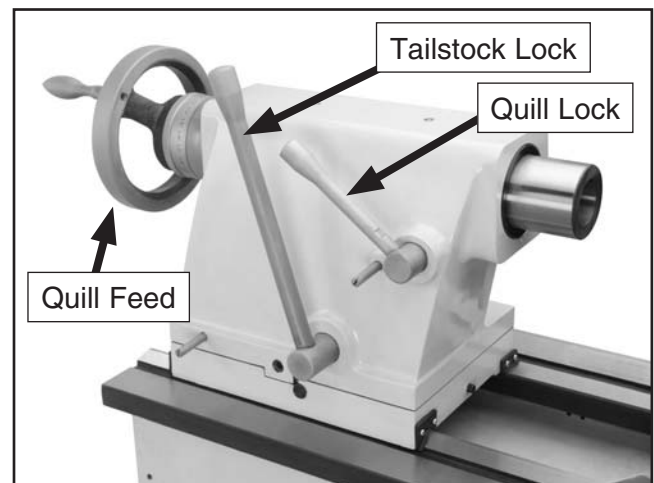


Figure 25. Tailstock and quill lock handles in locked position.

The tailstock (**Figure 25**) of the Model G0600 lathe can be used to support workpieces with the use of a live or dead center. It can drill or bore holes in the center of a part, using a drill bit and chuck, or MT#5 tapered shank drill bit. The tailstock can also be used for cutting shallow tapers by using the offset adjustment.

To use the tailstock:

1. Pull up on the lock handle.
2. Slide the tailstock to the desired position.
3. Push the tailstock lock handle to lock the tailstock in place.

To use the tailstock quill:

1. With the tailstock locked, pull up on the quill lock lever to unlock.
2. Turn the quill feed handle clockwise to feed/move the quill towards the spindle, or turn counterclockwise to move the quill away from the spindle.
3. Push the quill lock lever down to lock the quill in place.



Aligning Tailstock

To align the tailstock:

1. Using a precision level, make sure the bedways are level side-to-side and front-to-back. If the lathe is not level, shim the lathe base as required before proceeding.
2. Get two pieces of steel round stock that are 2" diameter x 6" inches long.
3. Center drill both ends of one piece of the round stock. Set the round stock aside for use in **Step 6**.
4. Using the other piece of stock, make a dead center by turning a shoulder to make a shank. Flip the piece over in the chuck and turn a 60° point (**Figure 26**).

Note: As long as the dead center remains in the chuck, the point of your center will remain true to the spindle axis. But remember the point will have to be refinished whenever it is removed and returned to the chuck.

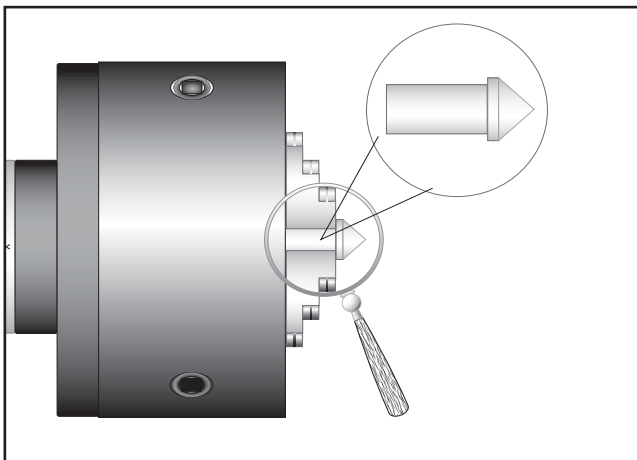


Figure 26. Chuck centering the dead center.

5. Place the live center in the tailstock.
6. Attach a lathe dog to the round stock and mount it between the centers.
7. Turn approximately 0.010" off the diameter.
8. Mount a dial indicator so the plunger is on the tailstock barrel before moving the tailstock.
9. Measure the stock diameter with a micrometer.
 - If the diameter is thicker at the tailstock end, move the tailstock toward you half of the diameter (**Figures 27**).
 - If the diameter is thinner at the tailstock end, move the tailstock away from you half the distance of the diameter (**Figure 28**).

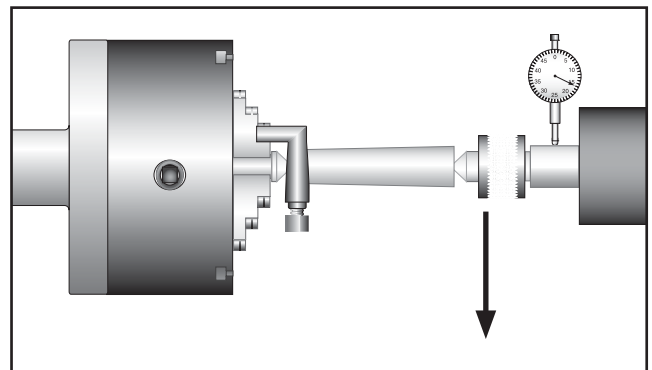


Figure 27. Tailstock adjustment option #1.

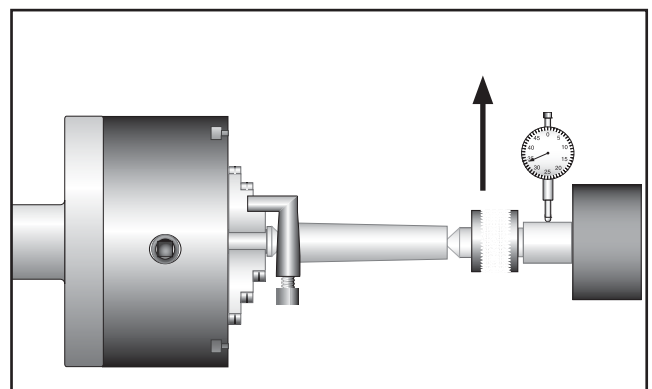


Figure 28. Tailstock adjustment option #2.

10. Turn another 0.010" off of the diameter and check for a taper. Repeat until the desired amount of accuracy is achieved.



Drilling with Tailstock

To install the tapered drill chuck:

1. With the tailstock locked, pull up to unlock the quill lock lever.
2. Turn the quill feed handle clockwise to extend the quill about one inch.
3. Insert a tapered drill arbor (**Figure 29**), or the tapered drill shank (**Figure 30**), into the quill until the taper is firmly seated. The matching tapers hold the arbor.

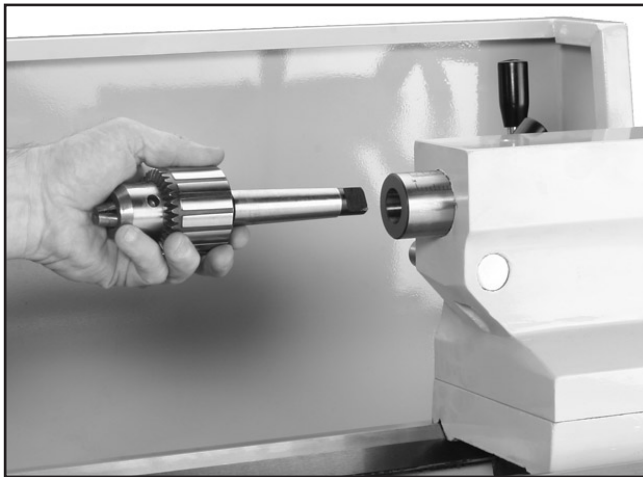


Figure 29. Typical tailstock chuck installation.

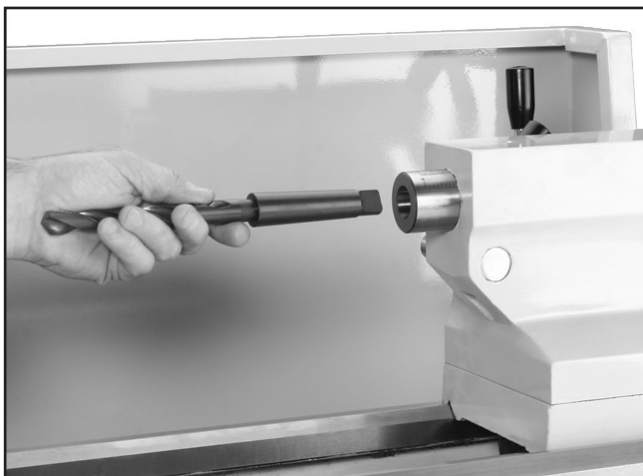


Figure 30. Typical tailstock tapered drill bit installation.

4. Turn the quill feed handle clockwise to feed the drill bit into the rotating workpiece.
5. To remove the chuck taper, turn the quill feed handle counterclockwise until the chuck is pushed out from the tailstock taper.

Cutting Tapers with Tailstock

The tailstock can be offset to cut a taper.

To offset the tailstock:

1. Lock the tailstock in position, and loosen the jack screw located just above the adjustment screw (**Figures 31 and 32**).
2. When the offset is achieved, snug the jack screw that you have been turning counterclockwise, and then snug opposite jack-screw.

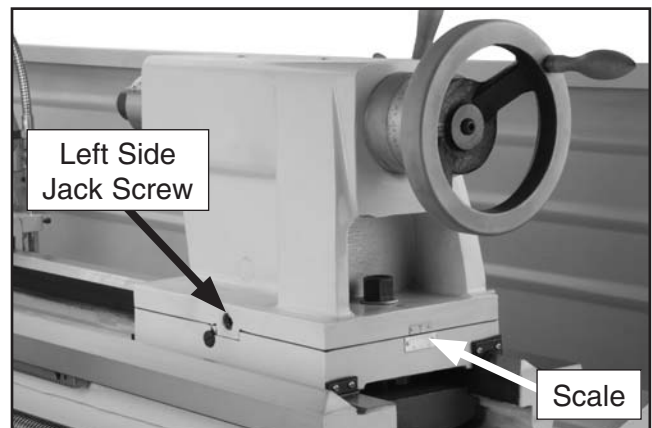


Figure 31. Tailstock off-set adjustments.

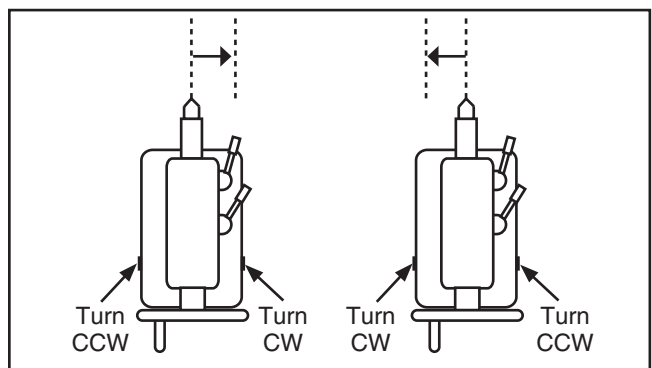


Figure 32. Jack screw adjustment verses tailstock movement.



Centers

The dead center is used in the tailstock to support workpieces. When used in the tailstock, make sure to keep the dead center tip and workpiece lubricated.

This lathe is supplied with two MT#5 dead centers—one is HSS and one is carbide tipped. The supplied MT#5-#7 sleeve fits into the spindle taper to hold the MT#7 center.

To install a dead or live center:

1. Feed the quill out about 1" so that the dead center can be inserted.
2. Insert the dead center into the quill opening. Matching tapers provide the locking action (see **Figure 33**).

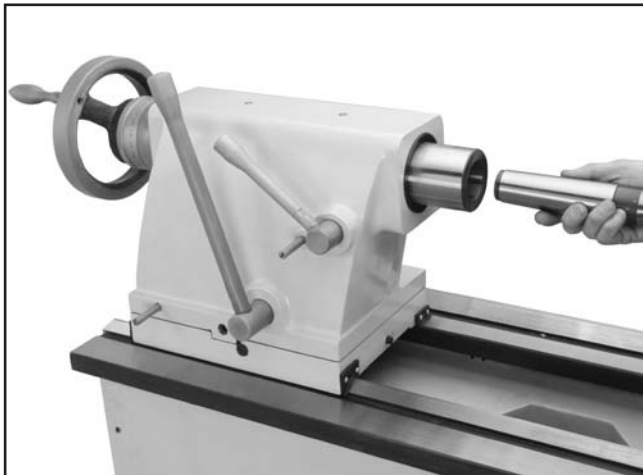


Figure 33. Inserting dead center.

3. Move the tailstock into position and lock in place with the tailstock lock lever.
4. Feed the quill into the workpiece.

Note: Make sure there is a center drilled hole in the end of workpiece for the dead center.

5. Lock the quill into place once the live center and the part rotate together. The quill may need to be adjusted during operation.
6. To remove the dead center, retract the quill until the dead center pops free.

The dead center can also be used in the spindle. The most common application is when using the faceplate (see **Figure 34**).

To install the dead center in the spindle:

1. Remove the chuck from the spindle.
2. Install the dead center in the spindle sleeve.
3. Install the sleeve and center into the spindle opening.
4. Attach the faceplate to the spindle.

Note: When using the dead center in the spindle, use a lathe dog so that your part will rotate with the spindle and not spin on the dead center tip.

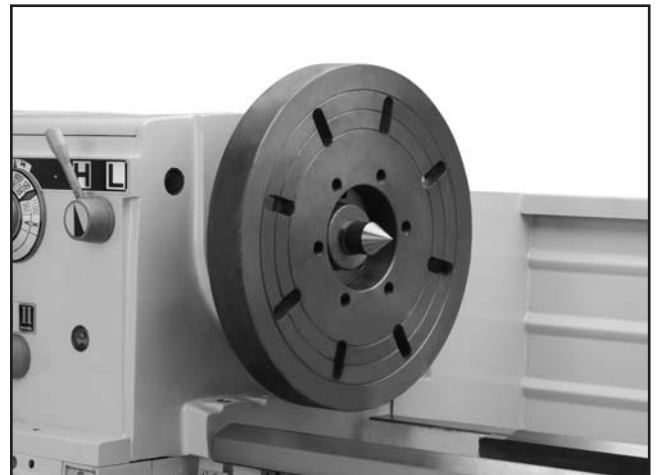


Figure 34. Typical faceplate and dead center setup.

NOTICE

Failure to keep dead center point well lubricated will damage dead center and workpiece.



Steady Rest

The steady rest serves as a support for long shafts (length to diameter ratio of 3:1 or greater). The steady rest can be placed anywhere along the length of the workpiece.

To install/use the steady rest:

1. With a helper, carefully place the steady rest on the lathe bedways so the triangular notch fits over the angled portion of the rear bedway.
2. Loosen the three thumb knobs so the finger positions can be adjusted (see **Figure 35**).

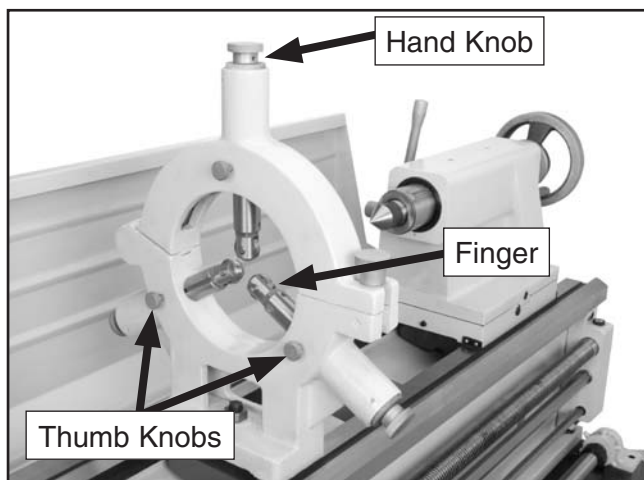


Figure 35. Steady rest adjustments.

3. Loosen the hand lock knob and open the steady rest so a workpiece can fit inside of the fingers (see **Figure 36**).

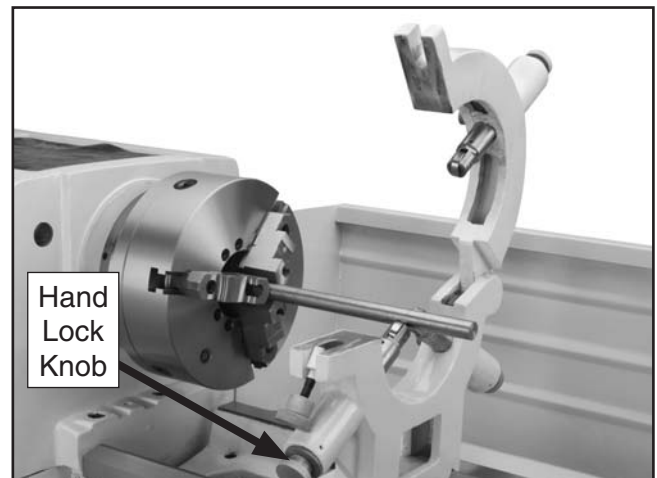


Figure 36. Hand lock knob.

4. Position the steady rest where desired. Tighten the hex nut at the base of the steady rest to secure it in place.
5. Close the steady rest so that the workpiece is inside the fingers and tighten the hand knob.
6. Set fingers snug to the workpiece and secure by tightening the three thumb knobs. Fingers should be snug and allow rotational movement of the workpiece. Lubricate the finger bearings with oil during operation.



Follow Rest

The follow rest in **Figure 37** is mounted on the saddle and follows the movement of the tool. The follow rest requires only two fingers as the cutting tool acts as the third. The follow rest is used on long, slender parts to prevent flexing of the workpiece from the pressure of the cutting tool. It should be used when the workpiece length to diameter ratio is 3:1 or greater.

The sliding fingers are set similar to those of the steady rest—free of play but not binding. Always lubricate during operation. Remove the follow rest from the saddle when not in use. After prolonged use, the fingers will need to be milled or filed to cleanup the contact surface.

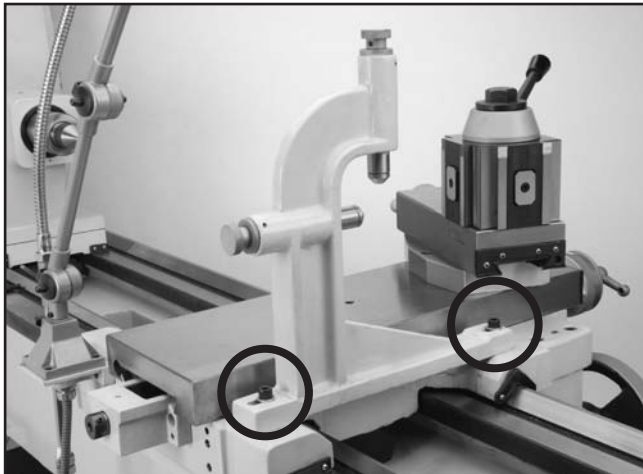


Figure 37. Follow rest attachment.

Setting Compound Slide

The compound slide is used to cut tapers on parts or to set the proper infeed angle when threading. It may also be used to cut specific lengths longitudinally, when set parallel to the spindle axis.

The compound slide handwheel has a graduated dial for precise inch feed increments. The base of the compound slide has a graduated scale for angular setup.

To set the angular position:

1. Loosen the two cap screws, one on each side of the compound slide (see **Figure 38**).

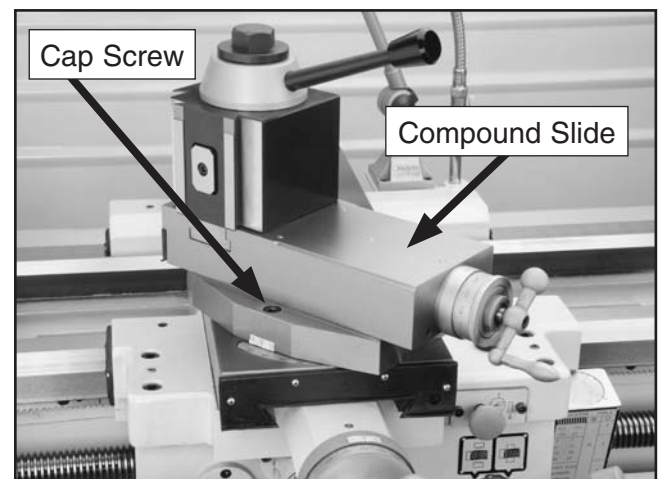


Figure 38. Compound slide set at an angle.

2. Rotate the compound slide to the desired angular position. Use the scale at the base of the slide and the indicator marks on the carriage to set the position.
3. Tighten the two cap screws. Be sure to not overtighten, as you may strip threads.

Note: *It is necessary to install your 60° degree tool bit and set it and the compound rest so it is perfectly perpendicular to a workpiece. Then using a protractor offset the compound rest to 29.5° degrees and mark the location on the cross slide. You will then have a quick reference point for setting the offset angle for cutting threads.*



Quick Change Tool Post

This 500 series quick change tool post allows for speedy tool changes. Tool registration and indexing is also fast and easy with the knurled jack screw assembly. The tool post is precision ground and hardened. The internal mechanism is a piston type design that locks the tool holder in place with superior rigidity (**Figure 39**).

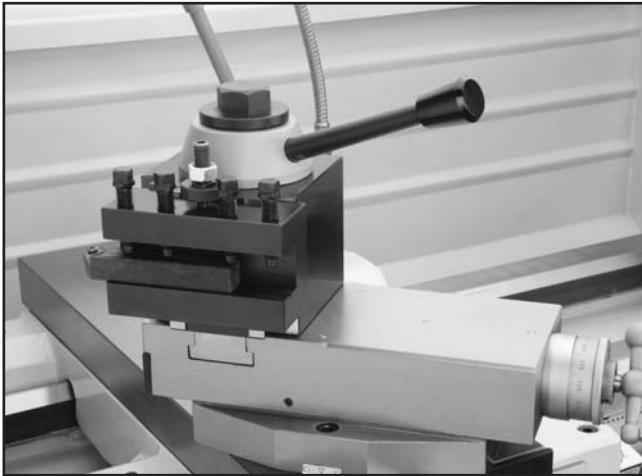


Figure 39. Tool holder and tool post.

Foot Brake

The Model G0600 lathe comes equipped with a foot brake (see **Figure 40**). The foot brake is intended to be used primarily as a time saving tool. The best method for using the foot brake is turn the spindle lever **OFF**, then step on the foot brake partially to stop the spindle.

Fully pushing the footbrake while the spindle is **ON** will kill the power to the motor and bring the spindle to a stop. Stopping the spindle in this manner is harder on the lathe gearbox, brake pad, and belts. This type of brake application should be reserved for panic situations. Once stopped, the spindle lever will then need to be returned to the neutral position.

Note: Do not confuse this feature with the emergency stop button. The emergency stop button cuts power to the machine and does not apply the brake. This button must be reset to restore power to the lathe.

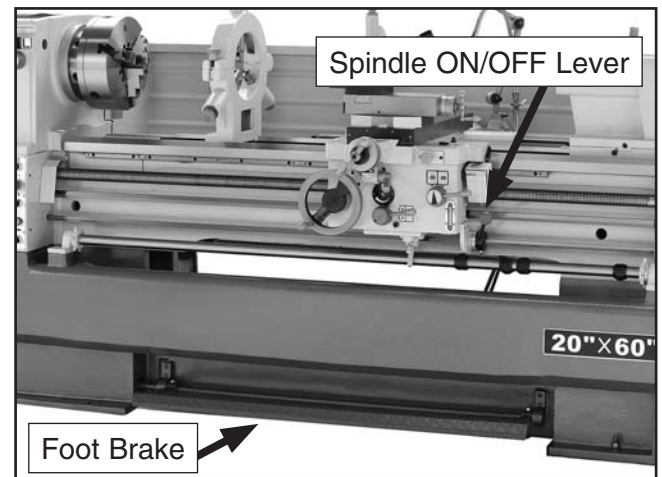


Figure 40. Foot brake and spindle *ON/OFF* lever.



Setting Spindle RPM

The spindle speed dial positions the headstock gears in one of three speed modes. In each mode, there are two speeds in low range and two speeds in high range. The range lever selects high or low range, and the range splitting lever selects one of the two remaining speeds within that range.

The range lever is used to select a set of high or low range spindle speeds from one of the three spindle speed modes shown on the spindle speed dial.

The range splitting lever is used to select the final spindle speed from the set of high or low range speeds selected by the range lever.

To find and set the spindle RPM:

1. Use the table in **Figure 41** to determine the cutting speed for your workpiece.

Cutting Speeds for High Speed Steel (HSS) Cutting Tools	
Workpiece Material	Cutting Speed (sfm)
Aluminum & Alloys	300
Brass & Bronze	150
Copper	100
Cast Iron, Soft	80
Cast Iron, Hard	50
Mild Steel	90
Cast Steel	80
Alloy Steel, hard	40
Tool Steel	50
Stainless Steel	60
Titanium	50
Plastics	300-800
Wood	300-500
Note: For carbide cutting tools, double the cutting speed. These values are a guideline only. Refer to the MACHINERY'S HANDBOOK for more detailed information.	

Figure 41. Cutting speed table for HSS cutting tools.

2. Determine the final diameter, in inches, for the cut you are about to take.

Note: For this step you will need to average out the diameters or work with the finish diameter for your calculations.

3. Use the following formula to determine the needed RPM for your operation:

$$\frac{\text{Cutting Speed (SFM)} \times 4}{\text{Tool Diameter (in inches)}} = \text{RPM}$$

With the calculated RPM, let us say it needs to be 80 RPM. So the headstock levers must be moved to the appropriate **X** or **Y** and **H** or **L** positions.

Note: You may need to rotate the spindle by hand or use the jog button to get the levers to properly engage.

4. Move the spindle speed dial so the red diamond on the dial lines up with the red diamond point on the headstock. Both diamonds should be at the 12:00 O'clock position (**Figure 43**). The RPMs available now are low: 25, 80; and high: 235, 700.
5. Move the spindle range lever to **L** (Low Range) as shown in **Figure 42**. The RPMs available now are low: 25, 80.
6. Move the range splitting lever to **X** as shown in **Figure 42**. The final spindle RPMs is 80.

WARNING

Failure to follow RPM and feed rate guidelines may threaten operator safety from ejected parts or broken tools.





Figure 42. Range levers.

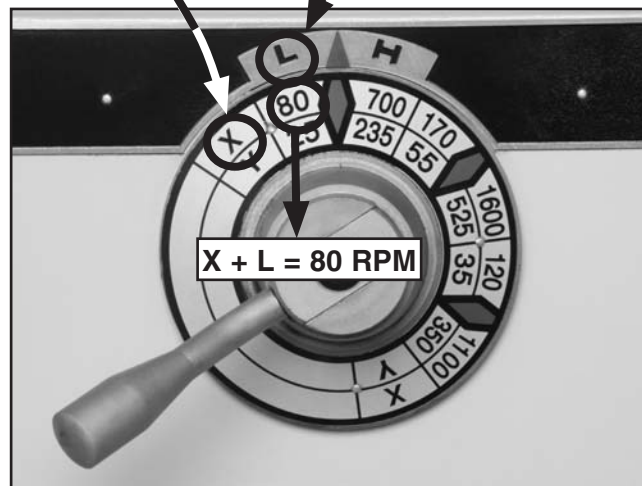


Figure 43. Spindle speed lever in left position.



Figure 44. Spindle speed lever in central position—55, 170, 525, 1600 RPMs available.

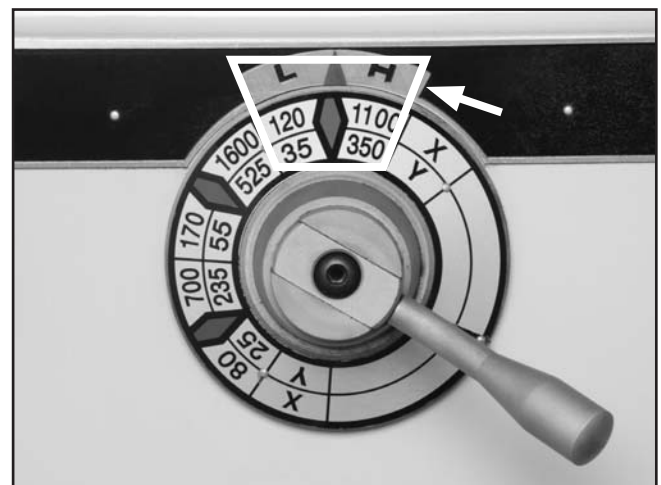


Figure 45. Spindle speed lever in right position—35, 120, 350, 1100 RPMs available.



Manual Feed

You can manually move the cutting tool around the lathe by three methods. This section will review the individual controls on the carriage and provide descriptions of their uses (see **Figure 46**).

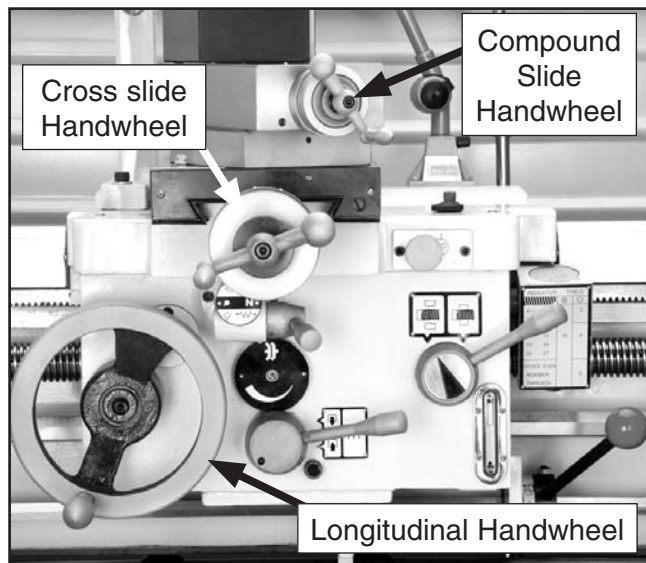


Figure 46. Carriage Controls.

Longitudinal Handwheel

The longitudinal handwheel moves the carriage left or right along the bed. This control is helpful when setting up the machine for turning or when manual movement is desired during turning operations.

Cross Slide Handwheel

The cross slide handwheel moves the top slide toward and away from the work. Turning the dial clockwise moves the slide toward the workpiece. The graduated dial can be adjusted by holding the handwheel with one hand and turning the dial with the other.

Compound Slide Handwheel

The compound slide handwheel controls the position of the cutting tool relative to the workpiece. The compound slide is adjustable for any angle within its range. The graduated dial is adjustable using the same method as the dial on the cross slide. Angle adjustment is secured by cap screws on the base of the compound slide.

Power Feed

NOTICE

Feed rate is based on spindle RPM. High feed rates combined with high spindle speeds result in a rapidly moving carriage or cross slide. Pay close attention to the feed rate you have chosen and keep your hand poised over the ON/OFF switch. Failure to take this precaution can lead to carriage and chuck crash.

For either cross or longitudinal feed, move the power feed lever on the apron in the directions indicated by the placard (**Figure 47**), and then move the feed direction lever (**Figure 48**) to select feed direction. Remember, all directions reverse when spindle rotation is reversed. Refer to the **Using the Thread Chart** on **Page 40** to learn how to shift the lathe in order to get a specific feed rate.

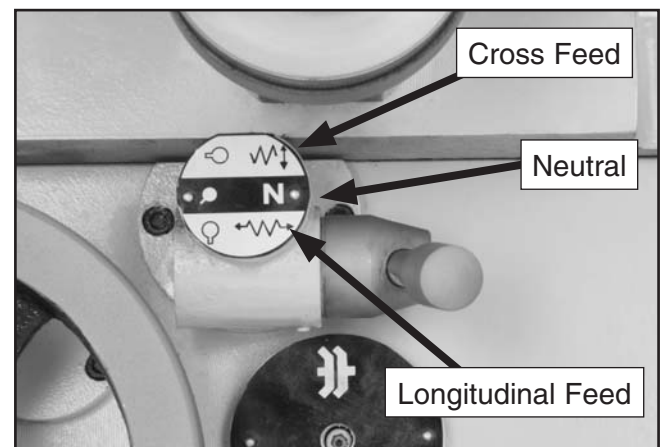


Figure 47. Power feed lever positions.

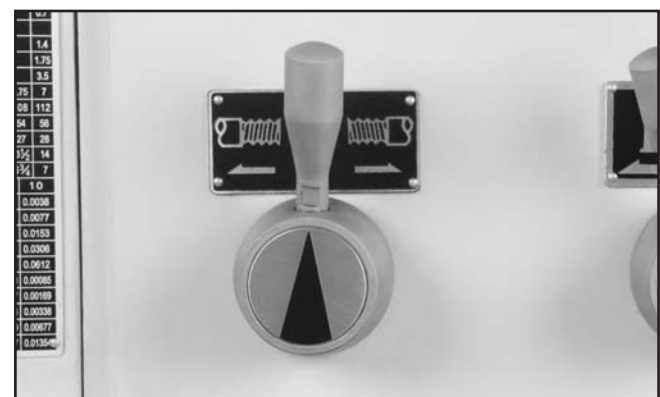


Figure 48. Feed direction lever.



Four-Position Apron Stop

Use the four-position apron stop for disengaging the apron automatically at up to four different apron locations.

You can tighten the eccentrics in place on the rod, each at different rotated positions, so each eccentric corresponds with a number on the dial. Then, depending which number you turn the stop selection dial (**Figure 49**) to, the rod will align the toe of the stop eccentric where you want the apron to stop. When the apron reaches that point, the crown of the stop eccentric will depress the clutch release lever and disengage the apron from the feed rod, thus stopping the apron.

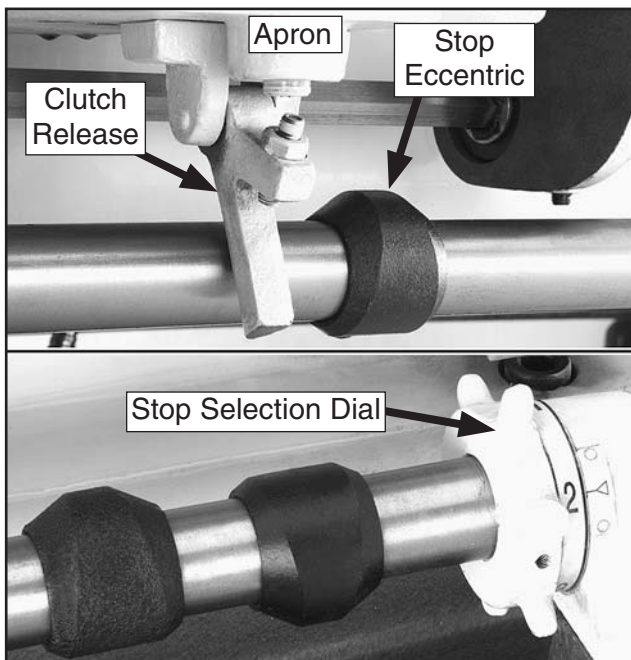


Figure 49. Four-position apron stop.

NOTICE

Every time you readjust the stop eccentrics, always manually test your apron stop setting before you rely on apron stop system to automatically disengage the apron.

NOTICE

This four-position apron stop system is only made to disengage the apron from the feed rod. When the lead screw is engaged for threading operations, the four-position apron stop will not disengage the apron—you must manually disengage the apron from the feed rod with the half nut lever or the apron will crash into the chuck.



Starting Lathe

Starting and stopping the lathe requires a couple of steps. First, the master switch (**Figure 50**) on the back of the lathe must be turned to the "1" position "**ON**", the green power lamp (**Figure 51**) will light.



Figure 50. Master switch.

Note: If you press the emergency stop button now, the power light will go out and cut power to the motor and spindle ON/OFF lever. Twisting the emergency stop button and letting it pop out will restore power for all lathe operations.

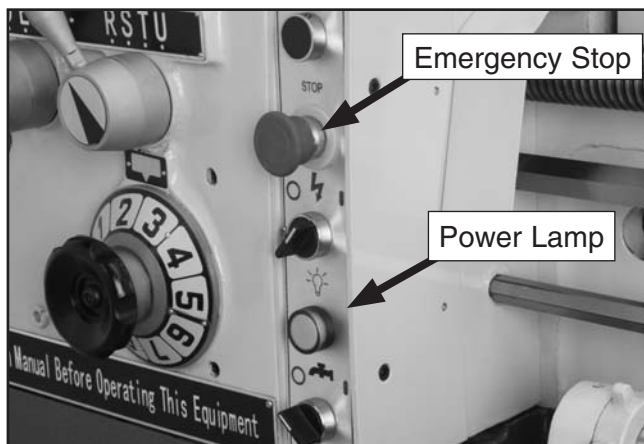


Figure 51. Power light.

Move the spindle ON/OFF lever (**Figure 52**) to start and stop spindle and chuck rotation.

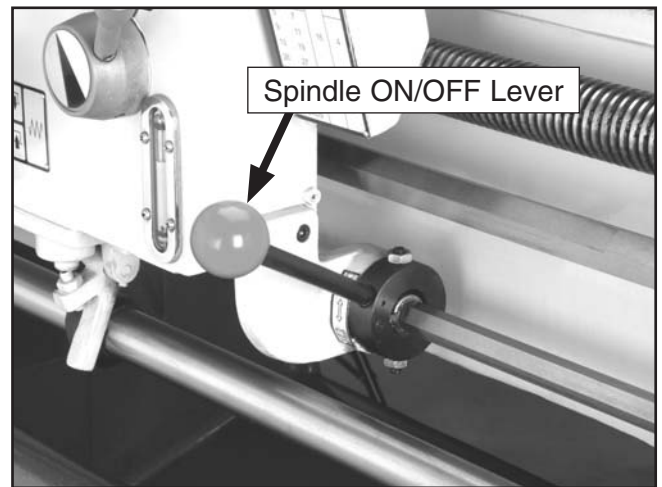


Figure 52. Spindle ON/OFF Lever.

To slow a free wheeling chuck to a stop without cutting power to the motor, partially press the foot brake (**Figure 53**) down. To stop the chuck and kill all power to the motor and controls as fast as possible in an emergency situation, push the brake down completely. Once stopped, the spindle lever will then need to be returned to the neutral position.

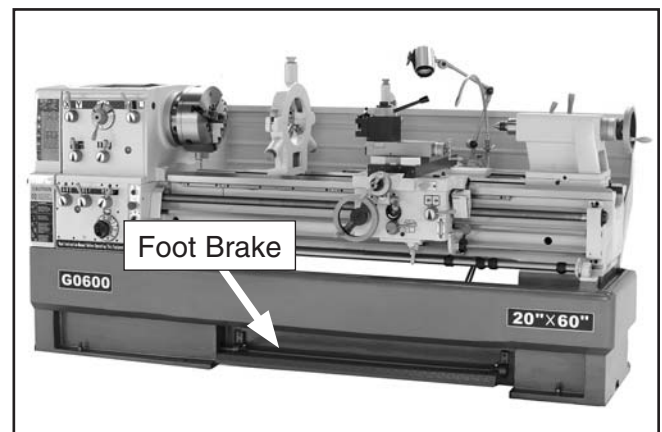


Figure 53. Foot brake.



Using the Thread Chart

This lathe comes with one 48-tooth and two 57-tooth change gears installed for cutting inch or metric threads. For cutting dimetrial or modular pitch threads, certain gears must be replaced and repositioned (refer to **Dimetrial and Modular Pitch Threading** on Page 41).

Example: To cut a modular pitch thread of 0.5, the threading chart in **Figure 56** indicates that you must change the gears into the (W) mode shown, and move the levers and dials to positions I, C, F, S, and 4 (**Figures 54 and 55**).

To cut inch and metric threads, or to use the chart for the X and Y power feed rates, the change gears must be changed to the (V) mode. Refer to **Inch and Metric Pitch Threading** on Page 43.

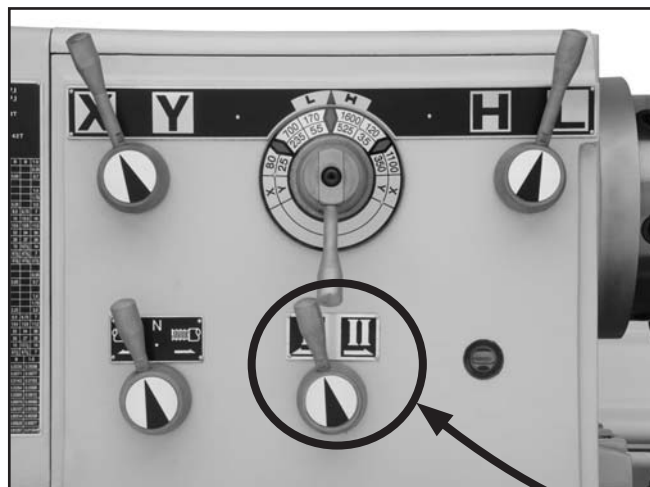


Figure 54. Headstock controls.

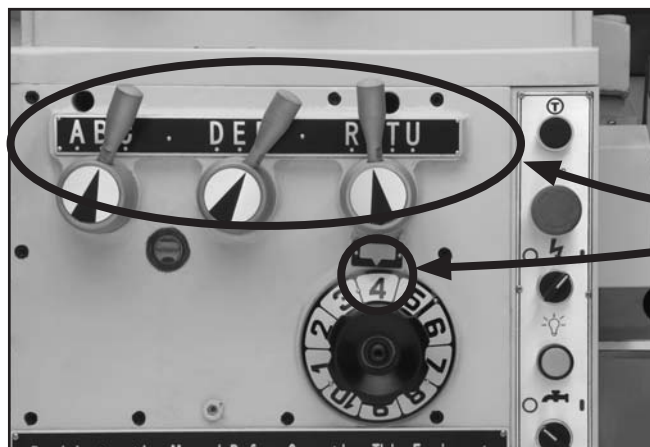


Figure 55. Gearbox controls.

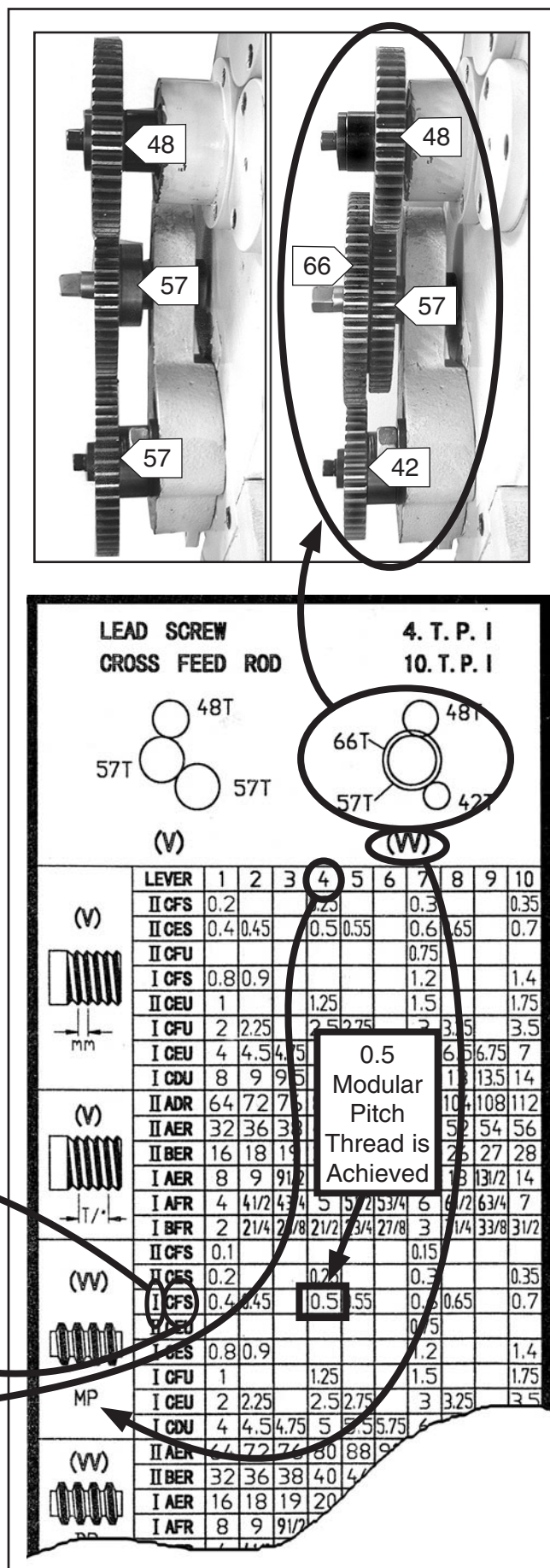


Figure 56. Threading chart.



Dimetrial and Modular Pitch Threading

NOTICE

Some threading operations may damage the lead screw if performed at high speeds. Always use the slowest speed possible for your particular operation!

This lathe comes with one 48-Tooth and two 57-Tooth change gears installed for cutting inch or metric threads. However for cutting dimetrial or modular threads the lower 57-Tooth gear must be replaced with the included 42-Tooth gear, and the 66-Tooth gear must be installed onto the shoulder of the center 57-Tooth gear (**Figure 57**). Gear positions must also be changed.

To setup the lathe to cut dimetrial or modular pitch threads:

1. DISCONNECT MACHINE FROM POWER!
2. Open the side cover and familiarize yourself with the orientation of the change gears (**Figure 57**).

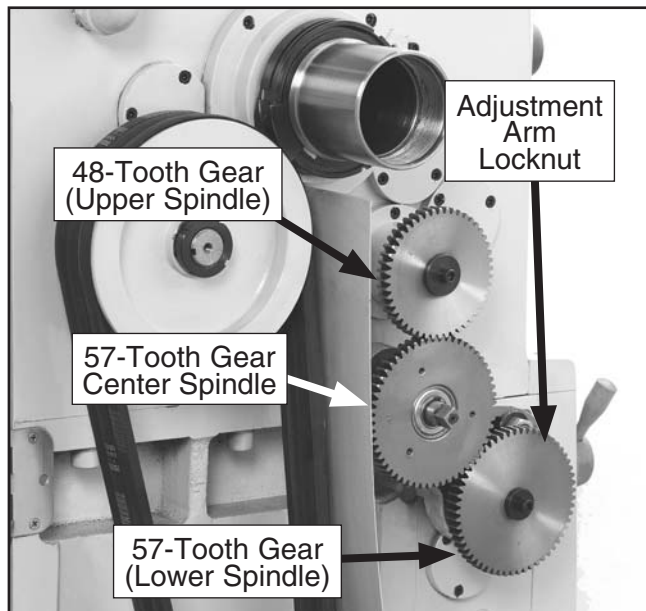


Figure 57. Change gear setup for inch and metric thread cutting.

3. Put on your safety glasses, and using a 14mm wrench, remove the center spindle and gear assembly (**Figure 58**).

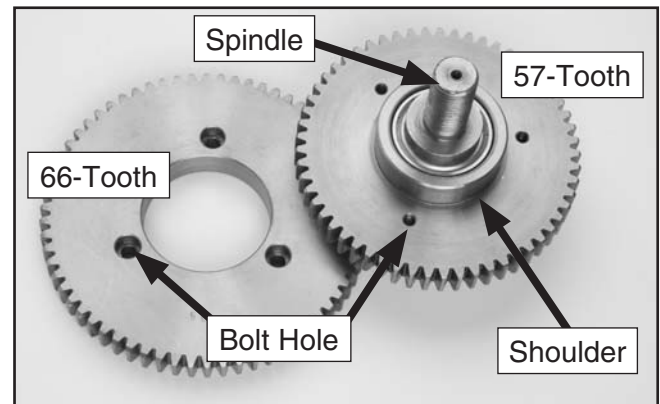


Figure 58. Center spindle, 57-tooth gear, and 66-tooth gear.

4. Using retaining ring pliers, remove the retaining ring from the spindle (**Figure 59**).

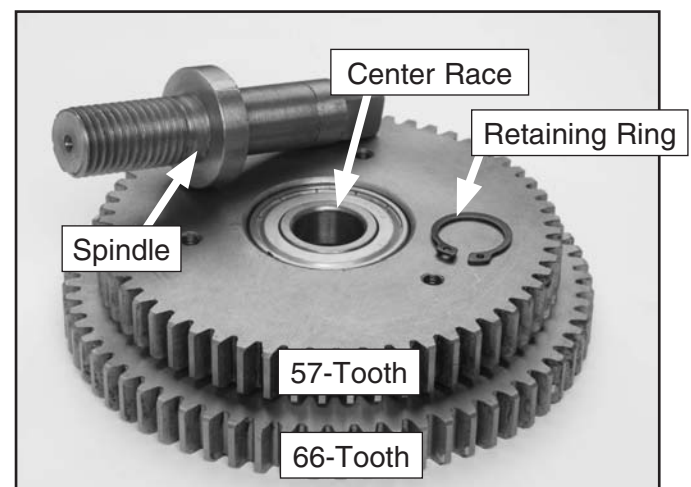


Figure 59. Spindle and center gear assembly.

5. Use a press to remove and flip the direction of the spindle, then install the retaining ring.

Note: You must use a press and a collar that will support the inner bearing race when removing the spindle from the gear. Do not use a hammer and punch to drive the spindle from the gear assembly or you will damage the ball bearings.

Note: When finished, and installed back on the lathe, the spindle must hold the 66-tooth gear outward as shown in (**Figure 63**).

6. Place the bore of the 66-tooth gear onto the shoulder of the 57-tooth gear, and align the three bolt holes (**Figure 58**) of the gears.

G0600 20" x 60" Big Bore Lathe



7. Thread the three M6-1 x 25 cap screws into the gears so the cap screws act as guide dowels allowing the gears to slide together without binding. Do not use a hammer to seat the gear.
8. Press the two gears together and tighten the three cap screws (**Figure 59**).
9. Remove the 57-tooth gear (**Figure 57**).
10. Slide the 42-tooth gear onto the lower spindle, install the shoulder washer on the spindle so the shoulder faces the gear (**Figure 60**), and install the cap screw.

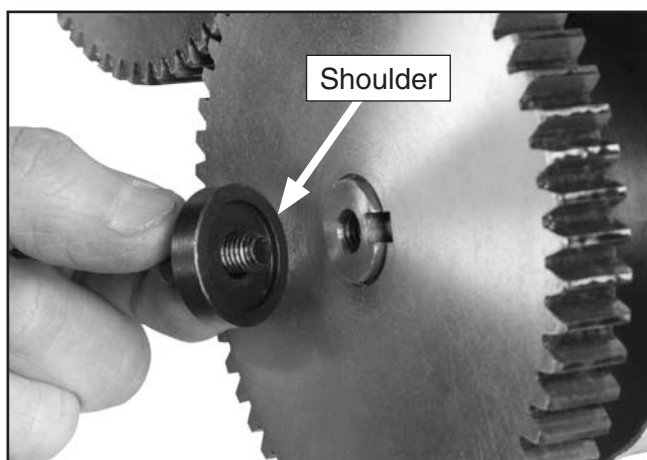


Figure 60. Shoulder washer positioning.

11. Using the 6mm hex wrench, remove the upper spindle cap screw, spacer washer, the 48-tooth gear, and the spacer (**Figure 57**).
12. With the shoulder of the 48-toothed gear facing the bearing seal (**Figure 61**), slide the gear back onto the shaft, then install the spacer, spacer washer and cap screw.

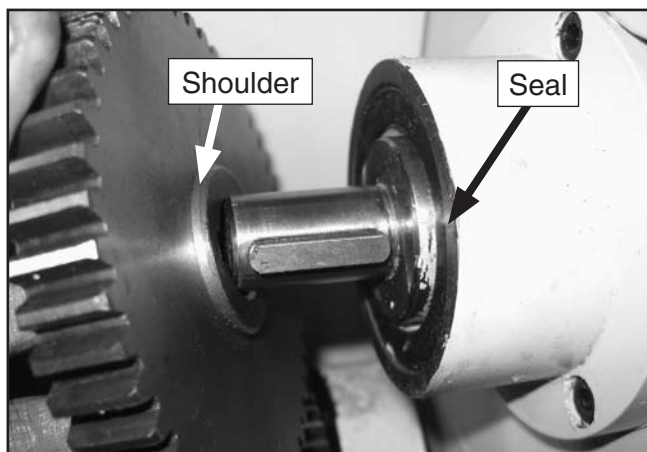


Figure 61. Upper spindle gear positioning.

13. Using a 24mm wrench, loosen the adjustment arm locknut (**Figure 62**), and let the adjustment arm swing away.

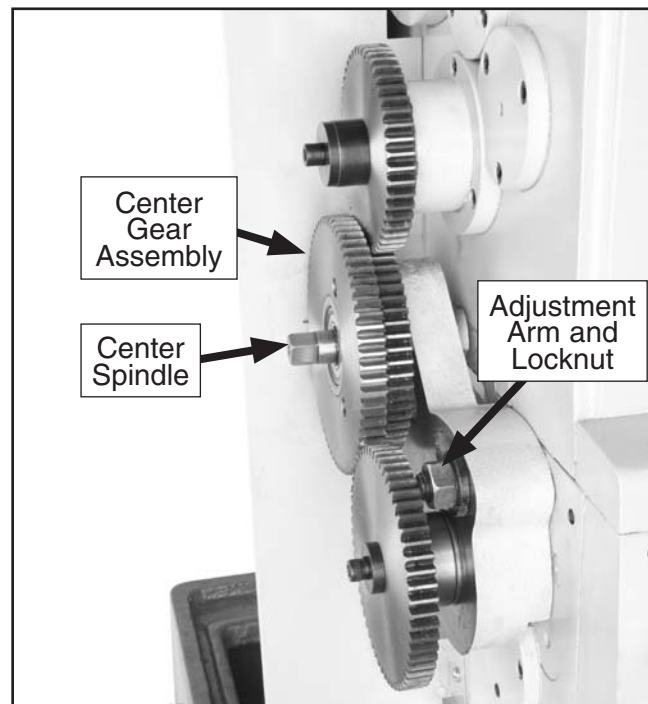


Figure 62. Center gear adjustment arm.

14. Install the center gear and spindle onto the adjustment arm, then finger tighten the spindle.
15. Move the center gear and adjustment arm assembly, then tighten the spindle and adjustment arm lock nut so all gears mesh and have 0.0015" to 0.004" of backlash.
16. Rotate the gears by hand to make sure no binding occurs, and then paint the gear teeth with general purpose automotive grease.
17. When you are finished, make sure the gear arrangement matches the (W) mode arrangement shown in **Figure 56**.
18. Close the side cover and refer to the **Threading Chart** on **Page 40** for how to shift your lathe to the appropriate feed or thread pitch.



Inch and Metric Pitch Threading

NOTICE

Always use the slowest speed possible for threading, and avoid deep cuts or you may not be able to disengage the half nut to prevent an apron crash!

If the lathe has been previously setup to cut dimetrial or modular pitch threads, you must reinstall the 57-Tooth gear on the lower spindle and remove the 66-Tooth gear on the middle spindle, and change certain gear positions.

To setup the lathe to cut inch and metric pitch threads:

1. **DISCONNECT MACHINE FROM POWER!**
2. Open the side cover and familiarize yourself with the orientation of the change gears (**Figure 63**).

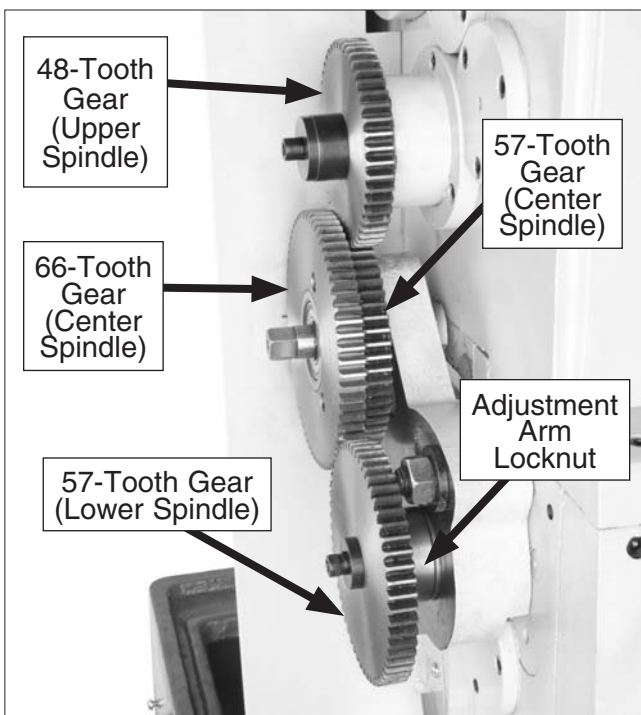


Figure 63. Change gear setup for dimetrial and modular thread cutting.

3. Put on your safety glasses, and using a 14mm wrench, remove the center spindle and gear assembly (**Figure 63**).
4. Using retaining ring pliers, remove the retaining ring from the spindle (**Figure 64**).
5. Use a press to remove and flip the direction of the spindle and reinstall the retaining ring.

Note: You must use a press and a collar that will support the inner bearing race when removing the spindle from the gear. Do not use a hammer and punch to drive the spindle from the gear assembly or you will damage the ball bearings.

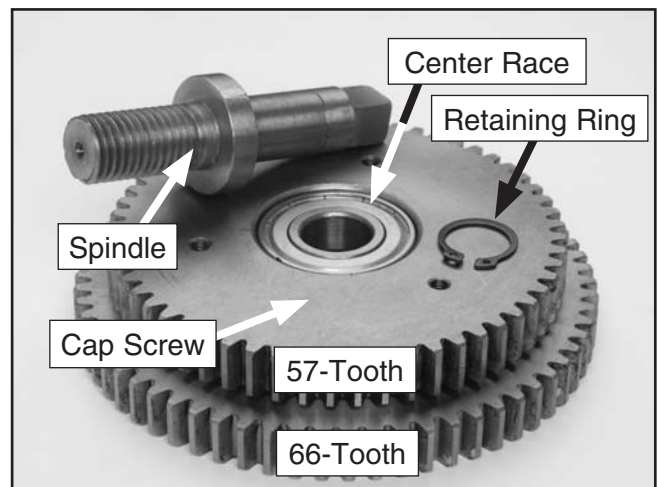


Figure 64. Spindle and center gear assy.

6. Remove the three M6-1 x 25 cap screws that hold the two gears together.
7. Protect the spindle and clamp it in a vise.
8. Carefully, using two #3 flat tip screwdrivers inserted between the gears at opposing directions, work the 66-tooth gear off of the shoulder of the 57-tooth gear. Do not use a hammer to separate the gears.
9. Use the 6mm hex wrench and remove the lower spindle cap screw, shoulder washer, and the 42-tooth gear (**Figure 63**).



10. Slide the 57-tooth gear onto the lower spindle, install the shoulder washer on the spindle so the shoulder faces the gear (**Figure 60**), and install the cap screw.

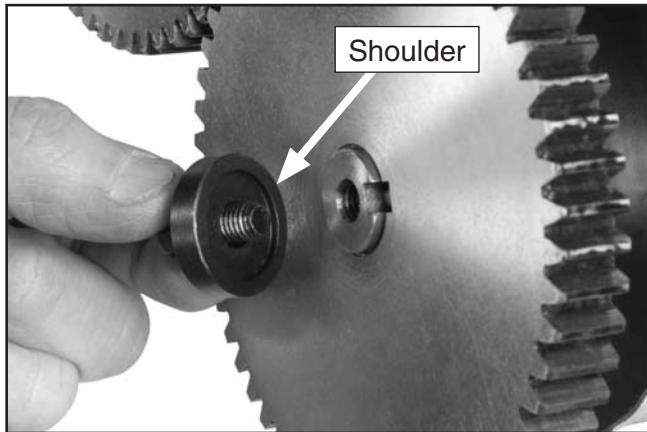


Figure 60. Shoulder washer positioning.

11. Using the 6mm hex wrench, remove the upper spindle cap screw, spacer washer, the 48-tooth gear, and the spacer (**Figure 63**).
12. Slide the spacer onto the spindle, then the 48-toothed gear with the shoulder facing the spacer (**Figure 61**). Install the spacer washer, and secure with the cap screw.

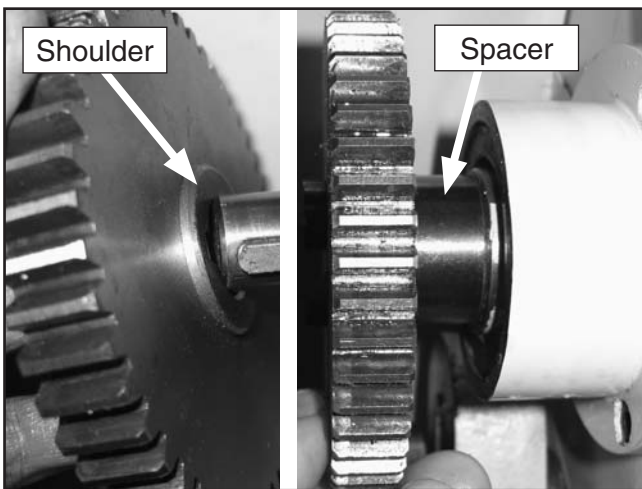


Figure 61. Upper spindle gear and spacer positioning.

13. Using a 24mm wrench, loosen the adjustment arm locknut (**Figure 62**), and let the adjustment arm swing away.

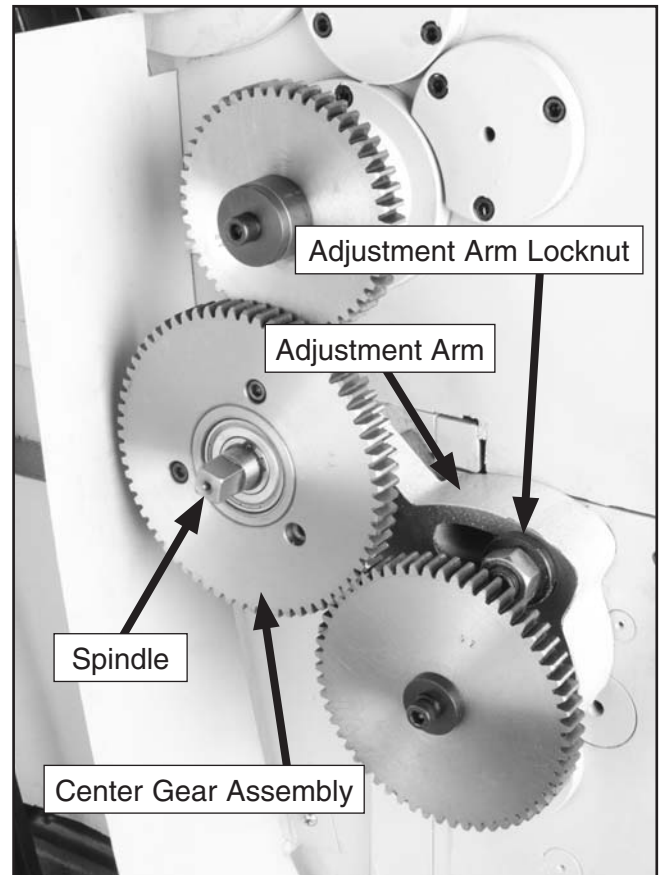


Figure 62. Center gear adjustment arm.

14. Install the center gear and spindle onto the adjustment arm, then finger tighten the spindle.
15. Move the center gear and adjustment arm assembly, then tighten the spindle and adjustment arm lock nut so all gears mesh and have 0.0015" to 0.004" of backlash.
16. Rotate the gears by hand to make sure no binding occurs, and then paint the gear teeth with general purpose automotive grease.
17. When you are finished, make sure the gear arrangement matches the (V) mode arrangement shown in **Figure 56**.
18. Close the side cover and refer to the **Threading Chart** on **Page 40** for how to shift your lathe to the appropriate feed or thread pitch.



Thread Dial

This lathe is equipped with a thread dial that lets you know where on the leadscrew you can re-engage the halfnut to resume inch threading. However, since the leadscrew is a 4 TPI, then the thread dial is not needed for any thread that is divisible by 4. Refer to the Indicator Table in **Figure 65** and see **Figure 66** for dial locations.

For metric dimetrial and modular threading, the thread dial is not used and you must leave the halfnut lever engaged until the threading job is complete.

NOTICE

Always use the slowest speed possible for threading, and avoid deep cuts or you may not be able to disengage the half nut to prevent an apron crash!




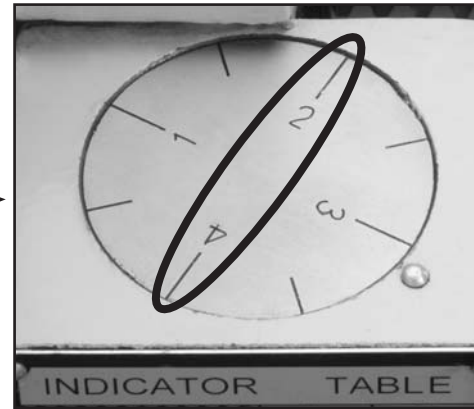
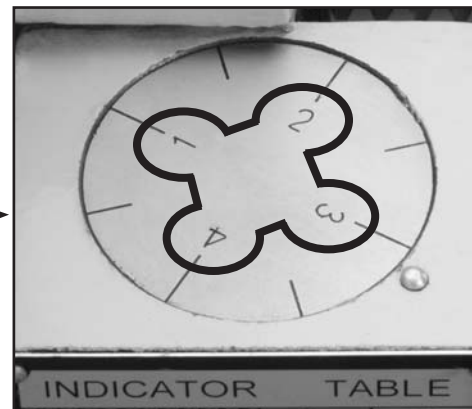
INDICATOR TABLE		
		
4½ , 11½ 13½ , 23	16	2
5 , 7 9 , 11 3 , 19 26 , 27		4
OTHER EVEN NUMBER THREADS		8

Figure 65.
Indicator Chart.

Number of teeth on the
thread dial drive gear.



For fractional TPI and 23 TPI: Numbers 2 or 4, 1 or 3, or any two opposing marks can be used.



For 3, 5, 7, 9, 11, 19, 27 odd TPI and even 26 TPI: Any four grouped numbers or marks can be used.



For all other even numbered TPI: Any number or mark can be used. Note: Since the leadscrew is a 4 TPI, then the thread dial is not needed for any thread that is divisible by 4.

Figure 66. Thread dial use.



SECTION 5: ACCESSORIES

This section includes the most common accessories available for this lathe through the Grizzly catalog, online at www.grizzly.com, or by calling 1-800-523-4777.

G7895—Citrus Degreaser

This citrus based degreaser is perfect for cleaning cosmoline off of new equipment. It also works for cleaning auto parts, tools, concrete, and porcelain surfaces. Natural, safe for the environment, and contains no CFC's.



Figure 67. G7895 Citrus Degreaser.

G7984—Face Shield

H1298—Dust Sealed Safety Glasses

H1300—UV Blocking, Clear Safety Glasses

H2347—Uvex® Spitfire Safety Glasses

H0736—Shop Fox® Safety Glasses

Safety Glasses are essential to every shop. If you already have a pair, buy extras for visitors or employees. You can't be too careful when it comes to shop safety!



Figure 68. Our most popular safety glasses.

G2871—Boeshield® T-9 12 oz Spray

G2870—Boeshield® T-9 4 oz Spray

This ozone friendly protective spray penetrates deep and really holds up against corrosive environments. Lubricates metals for months and is safe for use on most paints, plastics, and vinyls.



Figure 69. Boeshield® T-9 spray.

H3788—G96® Gun Treatment 12 oz Spray

H3789—G96® Gun Treatment 4.5 oz Spray

This triple action gun treatment cleans, lubricates, and protects all metal parts. Contains solvents that completely remove all traces of rust and corrosion and leaves no gummy residue.



Figure 70. G96® Gun Treatment spray.

Call 1-800-523-4777 To Order



H7938—Quick Change Collet Closer

This Quick Change Collet Closer allows you to quickly interchange parts on your Model G0600 Metal-Cutting Lathe. The positive-locking handle clamps standard 5-C collets safely and securely for precision turning.

See the current Grizzly catalog for a full line of 5-C collets.



Figure 71. H7938 Quick Change Collet Closer.

H9737—Taper Attachment for the G0600 Lathe.

The Model H9737 mounts to the back of the carriage and bed way to produce accurate tapers without repositioning.

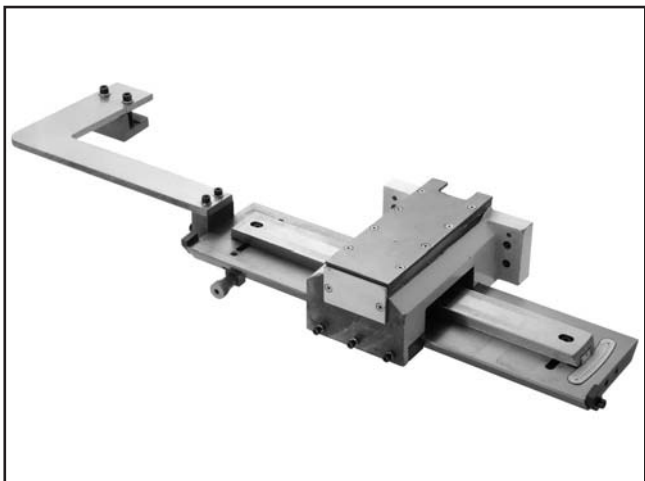


Figure 72. H9737 Taper Attachment.

G1238—Precision 5-C Collet Set

This 15 piece 5-C collet set is made from high grade collet steel and precision ground to exacting tolerances.



Figure 73. 15 Piece 5-C Collet Set.

H3741—30 HP/25 HP Start, Phase Converter

Add 3-phase electrical supply with this rotary phase converter! Operate single or multiple motors, transformers, and resistance loads at 100% power and 95% efficiency while saving big dollars at cheaply metered, single-phase electrical rates. For application assistance, please call our technical support group at (570) 546-9663.



Figure 74. Rotary Phase Converter

Call 1-800-523-4777 To Order



H2670—HSS Square Tool Bits ½" x ½" x 4

Our ground tool bits are M-2 HSS, making them some of the most durable tool bits around. Make your own specialized cutters in any shape using a silicon carbide grinding wheel (G8235-37) on your grinder.

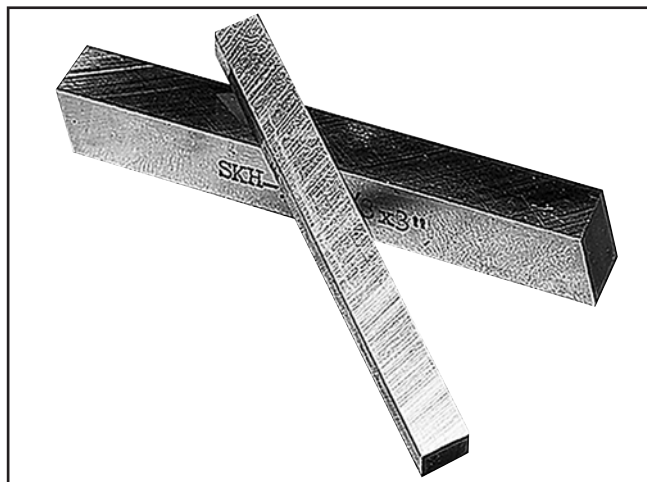


Figure 75. H2670 HSS Square Tool Bits.

H5687—8-Pc. Pre-Ground Tool Bit Set

Tired of grinding your blank high speed steel tool bits? We've done it for you! 8-pc set comes with these sharpened profiles: offset right and left hand tools with chip breaker, straight and chip breaker style threading tools, internal threading tool, parting tool, boring tool and turning tool. These tool bits are evenly hardened to better than 64C.

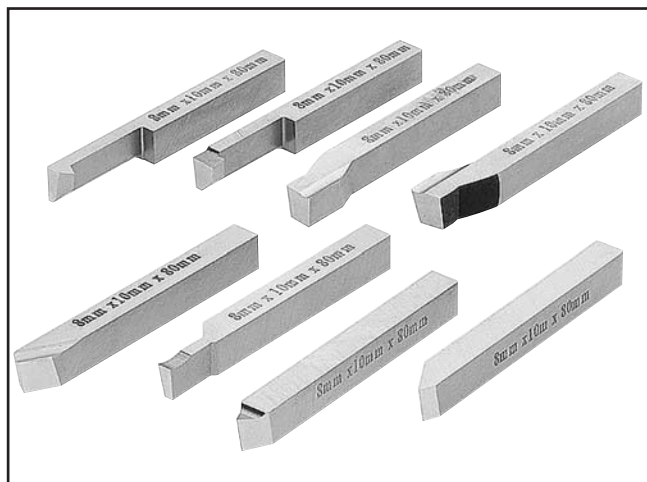


Figure 76. H5687 Pre-Ground Tool Bit Set.

G9777—20-Pc. Carbide Tipped Tool Bit Set

An exceptional value for carbide lathe tool bits! This twenty-piece set offers tremendous savings over bits sold individually, plus every type is duplicated and ready at hand when you need it. The carbide is C-6 grade for cutting steel and alloys.

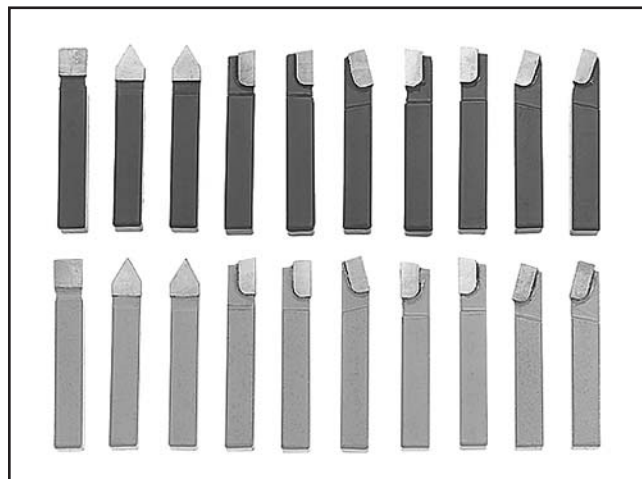


Figure 77. G9777 20 Pc. Carbide Tool Set.

G5640—5-Pc. Indexable Carbide Tool Set ½"

G6706—Replacement TiN Coated Carbide Indexable Insert

Five-piece turning tool set features indexable carbide inserts with "spline" type hold-down screw that allow indexing without removing the screw. Each set includes AR, AL, BR, BL, and E style tools with carbide inserts, hex wrench, extra hold-down screws and a wooden case.

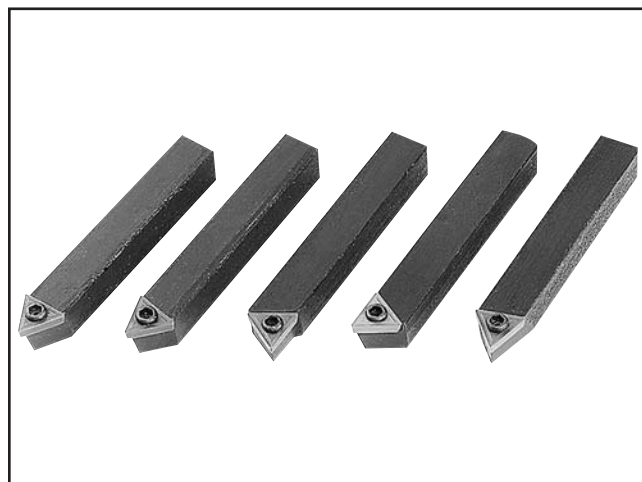


Figure 78. G5640 5 Pc. Indexable Tool Set.



H5930—HSS Center Drill Set 60°**H5931—HSS Center Drill Set 82°**

Double ended HSS center drills, are precision ground for unsurpassed accuracy. Each set includes sizes 1-4.

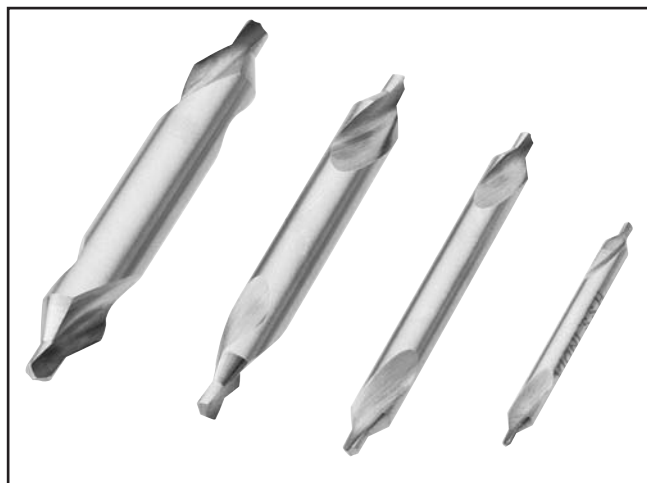


Figure 79. HSS Center Drills.

H6499—Brass 5-C Emergency Collet**H6500—Nylon 5-C Emergency Collet****H7500—Steel 5-C Emergency Collet**

Emergency collets to the rescue! We offer three styles of collets to get you out of a bind and back to work! Available in steel, brass and nylon, our 5-C collets are easy to machine to the size you need for holding delicate parts, odd sized tooling or your greatest challenge. (The steel collets have annealed faces and bores.) Minimum diameters are less than 0.085". Every busy shop should have a few of these on hand.

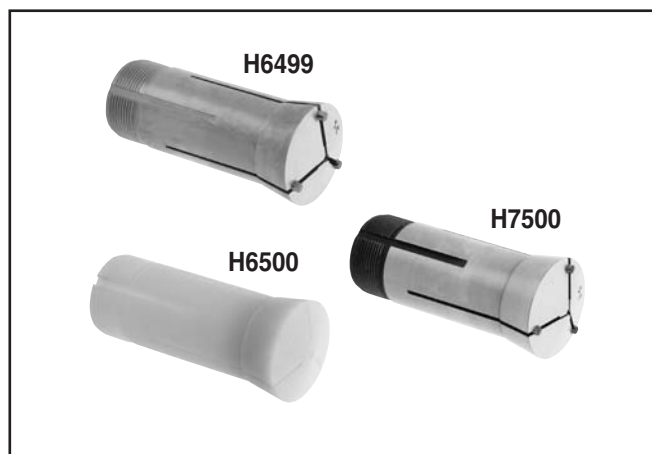


Figure 80. 5-C Emergency Collets

H7504—6 Pc. Square 5-C Collet Set**H7505—7 Pc. Hex 5-C Collet Set**

Whether you're using a spin indexer, collet closer on a lathe or grinding fixture on your surface grinder, eventually you are going to need to hold hex or square stock. These two sets feature hardened and ground bodies and sizes that fit most needs. The H7504 square set has sizes: 1/8", 1/4", 3/8", 1/2", 5/8" and 3/4". The H7505 hex collet set has sizes: 1/8", 1/4", 3/8", 1/2", 5/8", 3/4" and 7/8".



Figure 81. 5-C Hex and Square Collets.

H2987—1/2" Bent Lathe Dog**H2988—1" Bent Lathe Dog****H2989—1 1/2" Bent Lathe Dog****H2990—2" Bent Lathe Dog****H2991—3" Bent Lathe Dog**

Just the thing for precision machining between centers! These bent tail lathe dogs are made of durable cast iron and feature square head bolts.



Figure 82. H2987-91 Lathe Dogs.



MODEL	SIZE	BODY DIA.	DRILL DIA.	OVERALL LENGTH
H4456	1	1/8"	3/64"	1 1/4"
H4457	2	3/16"	5/64"	1 7/8"
H4458	3	1/4"	7/64"	2"
H4459	4	5/16"	1/8"	2 1/8"
H4460	5	7/16"	3/16"	2 3/4"
H4461	6	1/2"	7/32"	3"
H4462	7	5/8"	1/4"	3 1/4"
H4463	8	3/4"	5/16"	3 1/2"

These high speed steel center drills are precision ground for unsurpassed accuracy.

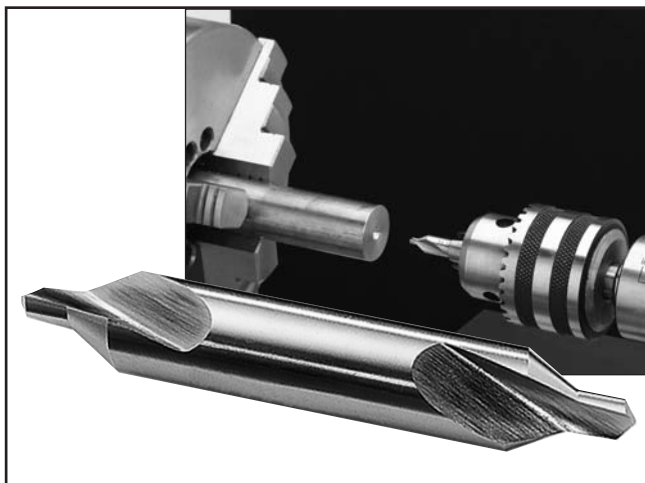


Figure 83. H4456-63 HSS Ground Center Drills.

G9245—MT4 Live Center Set

A super blend of quality and convenience, this live center set offers seven interchangeable tips. High-quality needle bearings prolong tool life and special tool steel body and tips are precision ground. Supplied in wooden box.

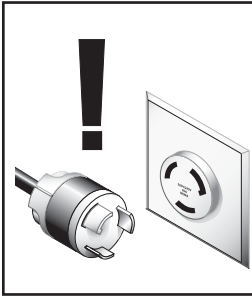


Figure 84. G9245 Live Center Set.

Call 1-800-523-4777 To Order



SECTION 6: MAINTENANCE



! WARNING

Always disconnect power to the machine before performing maintenance. Failure to do this may result in serious personal injury.

Schedule

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

Daily Checks and Maintenance:

- Loose mounting bolts.
- Emergency stop and brake operation.
- Worn or damaged wires.
- Coolant level.
- Lubrication levels.
- Remove chips.
- Any other unsafe condition.

Monthly Check:

- Change coolant as needed.

Cleaning

Cleaning the Model G0600 is relatively easy. Make sure to unplug the lathe before cleaning it. Clean your machine every day or more often as needed. Remove chips as they accumulate. Wet chips left on the machine will eventually invite oxidation and gummy residue to build up around moving parts. Cleaning will help keep your lathe running smoothly. Always be safe and responsible with the use and disposal of cleaning products.

Lubrication

General Lubrication

Keep machined metal surfaces like the chuck, ways bores, controls, change gears, rollers, and unpainted cast iron rust-free with applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9 (see **SECTION 5: ACCESSORIES** on **Page 46** for more details).

Headstock

The headstock gearbox is lubricated with an oil pump and 20W non-detergent oil, ISO 68, or an equivalent gear box machine oil. Keep the oil level full as seen in the sight glass shown in (**Figure 85**). When the lathe is running, periodically make sure that you see oil pumping out of the oil tube in the pump-check sight glass (**Figure 85**). If oil is not seen pumping, shut the lathe down immediately and contact Grizzly Technical Support.



Figure 85. Oil pump sight glass.



After the first month of daily operation, drain the oil through the drain plug at the back of the headstock (**Figure 86**), open the side cover and refill the headstock through the fill plug (**Figure 87**). Change the headstock oil yearly, or more frequently if heavy machine use requires it.



Figure 86. Headstock oil drain.

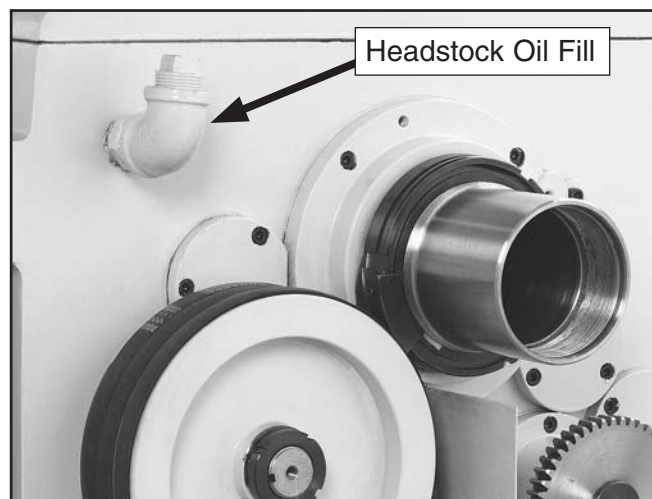


Figure 87. Headstock oil fill.

Quick Change Gearbox

The quick change gearbox is lubricated with 20W non-detergent oil, ISO 68, or an equivalent gear box machine oil. Keep the oil level full as seen in the sight glass (**Figure 88**).

After the first month of daily operation, drain and refill the gear box. See **Figure 89** for plug locations. Change the gearbox oil yearly, or more frequently if heavy machine use requires it.



Figure 88. Oil sight glass locations.



Figure 89. Gearbox oil fill.

Apron

The apron gearbox is lubricated with 20W non-detergent oil, ISO 68, or an equivalent gear box machine oil. Keep the oil level full as seen in the sight glass shown in (**Figure 90**).

After the first month of daily operation, drain the apron oil through the drain plug (**Figure 90**), and refill the apron through the fill plug labeled OIL (**Figure 90**). At a minimum, change the apron oil yearly or more frequently if heavy machine use requires it.

Apron Oil Pump

To lubricate the saddle slide and the cross slide way guides, pull the oil pump knob (**Figure 90**) out and hold it for two or three seconds, the pump will draw oil from the apron reservoir, and then push the knob in so the oil is pumped through drilled passages to the way guides. Repeat this process until the way guides are lubricated. Lubricate the guides once before and once after using the lathe. If the lathe is in an environment that has high moisture or is very dirty, increase the lubrication interval.

Lead Screw and Feed Rod

To lubricate the lead screw, clean with mineral spirits and relubricate with a very light machine oil so rust will not form on the threads. **DO NOT** use grease, as grease will pickup metal chips and abrasives and carry them into the halfnut, causing premature wear.

Fill the lead screw and feed rod bearing housing through the oil plug (**Figure 91**) until the housing is full. Use the same oil as used in the apron.

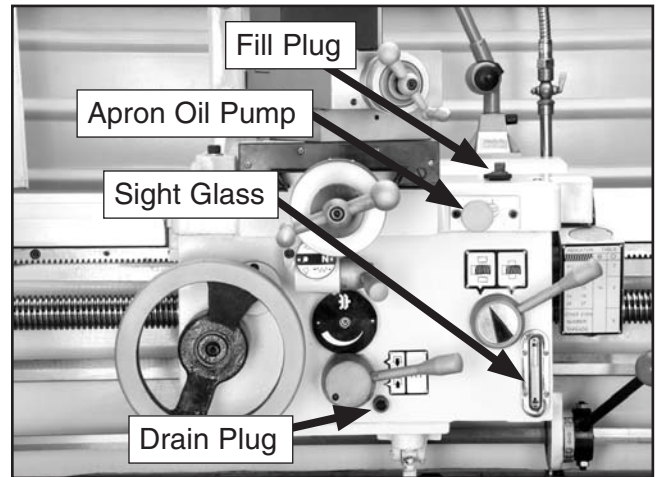


Figure 90. Apron lubrication components.



Figure 91. Leadscrew lubrication.



Ball Oilers

This lathe has 11 ball oiler locations. To lubricate ball oilers, clean the outside of the ball oiler, push the ball with the tip of the oil can nozzle and squirt one or two drops of oil inside the oiler before and after using the lathe. If the shop environment has high moisture or is very dirty, increase the oiling interval. Use the same oil as you are using for the headstock. The locations listed below show the ball oilers in **Figures 95 to 94**:

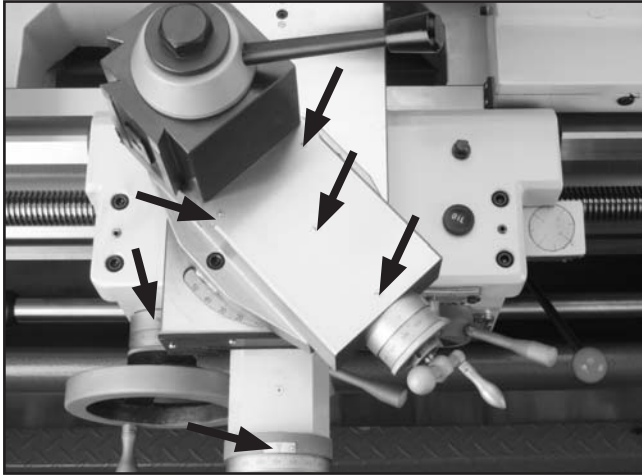


Figure 92. Apron and slide ball oiler locations: 4 ball oilers on the compound rest, 1 ball oiler on the cross slide handle hub, 1 ball oiler on the apron feed handle hub.

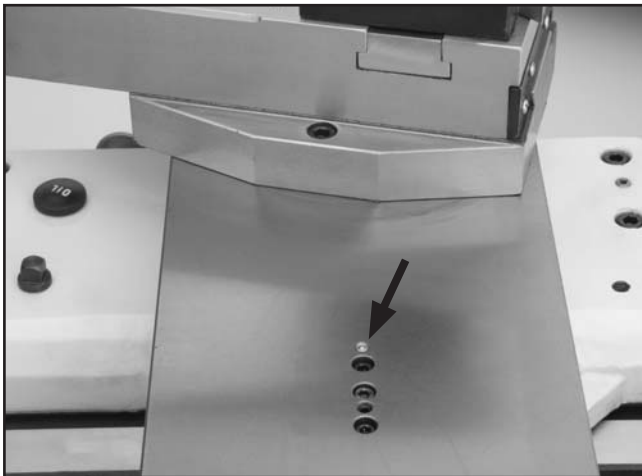


Figure 93. Cross slide ball oiler location: 1 ball oiler on the cross slide.

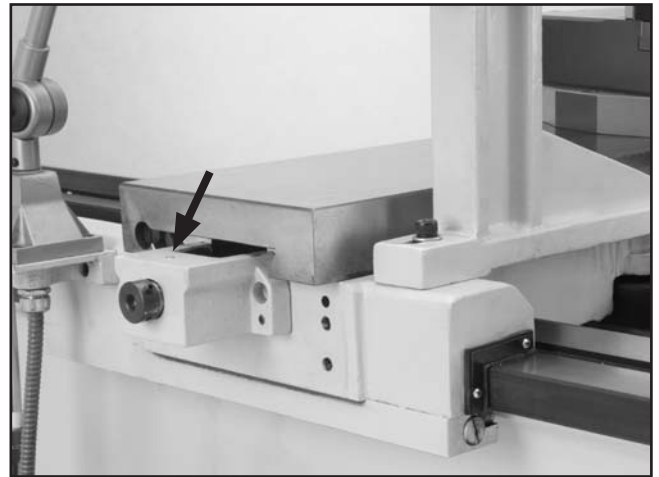


Figure 94. Cross slide leadscrew end bearing ball oiler location: 1 ball oiler on the cross slide lead screw end cap.

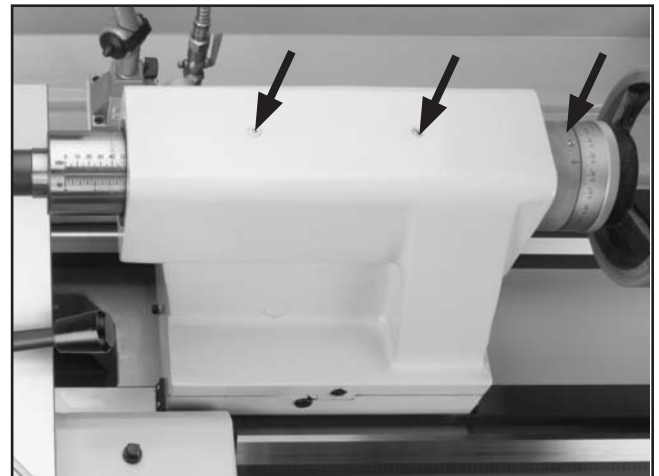
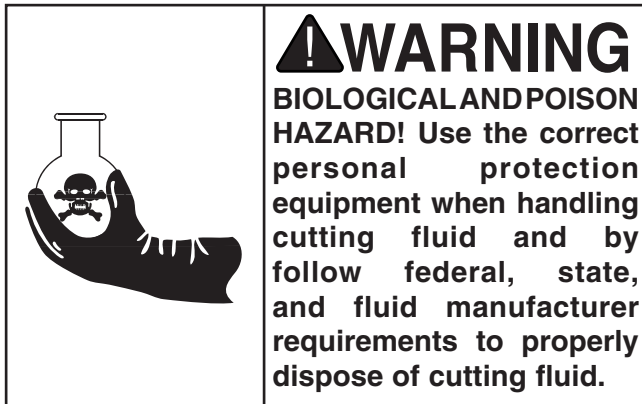


Figure 95. Tailstock ball oiler locations: 1 ball oiler on the tailstock handwheel hub and 2 ball oilers on the tailstock housing top.

Coolant System



The coolant pump and reservoir are located in the base behind the vented cover on the tailstock end of the lathe.

To perform regular maintenance on the cutting fluid system:

1. Remove the access cover at the rear of the lathe (**Figure 96**).

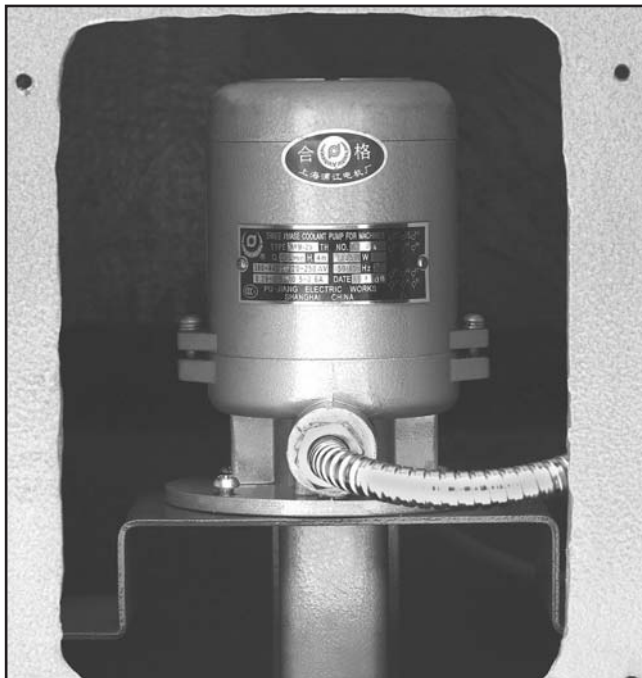


Figure 96. Coolant pump and reservoir.

2. Pump the old cutting fluid out of the reservoir and dispose of according to State and Federal Environmental Laws.
3. Using a magnet, brush, and rags clean out metal chips from the bottom of the reservoir. Flush with hot soapy water if required.
4. Refill the reservoir with applicable water-soluble cutting fluid. Closely follow the fluid manufacturer's instructions for mixing.
5. Open the valve on the coolant nozzle.
6. Turn the coolant pump **ON** (**Figure 97**) to prime the coolant system and to see if the coolant is cycling properly.
7. Replace the access cover.



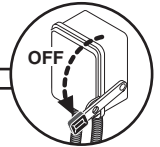
Figure 97. Coolant pump switch.



SECTION 7: SERVICE

Review the troubleshooting and procedures in this section to fix your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

Troubleshooting



Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a circuit breaker trips.	<ol style="list-style-type: none"> 1. Foot brake is engaged. 2. Emergency stop push-button is engaged/faulty. 3. Power supply is at fault/switched OFF. 4. Fuse has blown. 5. Plug/receptacle is at fault or wired incorrectly. 6. Start capacitor is at fault. 7. Motor connection wired incorrectly. 8. Thermal overload relay has tripped. 9. Contactor not getting energized/has burnt contacts. 10. Wall fuse/circuit breaker is blown/tripped. 11. Motor ON button or ON/OFF switch is at fault. 12. Wiring is open/has high resistance. 13. Motor is at fault. 14. Spindle rotation switch is at fault. 15. Foot brake safety switch is faulty. 	<ol style="list-style-type: none"> 1. Check to see that foot brake is up. 2. Rotate clockwise slightly until it pops out/replace it. 3. Power supply is at fault/switched OFF. 4. Correct short/replace fuse in main electrical box. 5. Test for good contacts; correct the wiring. 6. Test/replace if faulty. 7. Correct motor wiring connections. 8. Turn cut-out dial to increase working amps and push the reset pin. Replace if tripped multiple times (weak relay). 9. Test for power on all legs and contactor operation. Replace unit if faulty. 10. Ensure correct size for machine load; replace weak breaker. 11. Replace faulty ON button or ON/OFF switch. 12. Check for broken wires or disconnected/corroded connections, and repair/replace as necessary. 13. Test/repair/replace. 14. Turn switch to FWD/REV; replace bad switch. 15. Test, replace if needed.
Loud, repetitious noise coming from machine at or near the motor.	<ol style="list-style-type: none"> 1. Pulley setscrews or keys are missing or loose. 2. Motor fan is hitting the cover. 	<ol style="list-style-type: none"> 1. Inspect keys and setscrews. Replace or tighten if necessary. 2. Tighten fan or shim cover, or replace items.
Motor overheats.	<ol style="list-style-type: none"> 1. Motor overloaded. 2. Air circulation through the motor restricted. 	<ol style="list-style-type: none"> 1. Reduce load on motor. 2. Clean out motor to provide normal air circulation.
Motor is loud when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> 1. Excessive depth of cut or feed rate. 2. RPM or feed rate wrong for cutting operation. 3. Cutting tool is dull. 4. Gear setup is too tight, causing them to bind. 	<ol style="list-style-type: none"> 1. Decrease depth of cut or feed rate. 2. Refer to RPM feed rate chart for appropriate rates. 3. Sharpen or replace the cutting tool. 4. Readjust the gear setup with a small amount of backlash so the gears move freely and smoothly when the chuck is rotated by hand.



Operation and Work Results

Symptom	Possible Cause	Possible Solution
Entire machine vibrates excessively upon start-up and while running.	<ol style="list-style-type: none"> 1. Workpiece is unbalanced. 2. Loose or damaged belt(s). 3. V-belt pulleys are not properly aligned. 4. Worn or broken gear present. 5. Chuck or faceplate has become unbalanced. 6. Spindle bearings badly worn. 	<ol style="list-style-type: none"> 1. Reinstall workpiece so it is as centered with the spindle bore as possible. 2. Tighten/replace the belt as necessary. 3. Align the V-belt pulleys. 4. Inspect gears and replace if necessary. 5. Rebalance chuck or faceplate; contact a local machine shop for help. 6. Replace spindle bearings.
Bad surface finish.	<ol style="list-style-type: none"> 1. Wrong RPM or feed rate. 2. Dull tooling or poor tool selection. 3. Too much play in gibs. 4. Tool too high. 	<ol style="list-style-type: none"> 1. Adjust for appropriate RPM and feed rate. 2. Sharpen tooling or select a better tool for the intended operation. 3. Tighten gibs. 4. Lower the tool position.
Can't remove tapered tool from tailstock quill.	<ol style="list-style-type: none"> 1. Quill had not retracted all the way back into the tailstock. 2. Debris was not removed from taper before inserting into quill. 	<ol style="list-style-type: none"> 1. Turn the quill handwheel until it forces taper out of quill. 2. Always make sure that taper surfaces are clean.
Cross slide, compound slide, or carriage feed has sloppy operation.	<ol style="list-style-type: none"> 1. Gibs are out of adjustment. 2. Handwheel is loose. 3. Lead screw mechanism worn or out of adjustment. 	<ol style="list-style-type: none"> 1. Tighten gib screw(s). 2. Tighten handwheel fasteners. 3. Tighten any loose fasteners on lead screw mechanism.
Cross slide, compound slide, or carriage feed handwheel is hard to move.	<ol style="list-style-type: none"> 1. Gibs are loaded up with shavings, dust, or grime. 2. Gib screws are too tight. 3. Backlash setting too tight (cross slide only). 4. Bedways are dry. 	<ol style="list-style-type: none"> 1. Remove gibs, clean ways/dovetails, lubricate, and readjust gibs. 2. Loosen gib screw(s) slightly, and lubricate bedways. 3. Slightly loosen backlash setting by loosening the locking screw and adjusting the spanner ring at the end of the handle. 4. Lubricate bedways and handles.
Cutting tool or machine components vibrate excessively during cutting.	<ol style="list-style-type: none"> 1. Tool holder not tight enough. 2. Cutting tool sticks too far out of tool holder; lack of support. 3. Gibs are out of adjustment. 4. Dull cutting tool. 5. Incorrect spindle speed or feed rate. 	<ol style="list-style-type: none"> 1. Check for debris, clean, and retighten. 2. Reinstall cutting tool so no more than $\frac{1}{3}$ of the total length is sticking out of tool holder. 3. Tighten gib screws at affected component. 4. Replace or sharpen cutting tool. 5. Use the recommended spindle speed.
Inaccurate turning results from one end of the workpiece to the other.	<ol style="list-style-type: none"> 1. Headstock and tailstock are not properly aligned with each other. 	<ol style="list-style-type: none"> 1. Realign the tailstock to the headstock spindle bore center line.
Chuck jaws won't move or don't move easily.	<ol style="list-style-type: none"> 1. Chips lodged in the jaws. 	<ol style="list-style-type: none"> 1. Remove jaws, clean and lubricate chuck threads, and replace jaws.
Carriage won't feed.	<ol style="list-style-type: none"> 1. Gears are not all engaged. 2. Gears are broken. 3. Loose screw on the feed handle. 	<ol style="list-style-type: none"> 1. Adjust gear positions. 2. Replace. 3. Tighten.



Operation and Work Results

Symptom	Possible Cause	Possible Solution
Carriage hard to move.	<ol style="list-style-type: none"> 1. Carriage lock is tightened down. 2. Chips have loaded up on bedways. 3. Bedways are dry and in need of lubrication. 4. Longitudinal stops are interfering. 5. Gibs are too tight. 	<ol style="list-style-type: none"> 1. Check to make sure the carriage lock bolt is fully released. 2. Frequently clean away chips that load up during turning operations. 3. Lubricate bedways and handles. 4. Check to make sure that stops are floating and not hitting the center stop. 5. Loosen gib screw(s) slightly.
Gear change levers will not shift into position.	<ol style="list-style-type: none"> 1. Gears not aligned in headstock. 	<ol style="list-style-type: none"> 1. Rotate spindle by hand until gear falls into place.
Loud, repetitious noise coming from machine.	<ol style="list-style-type: none"> 1. Gears not aligned in headstock or no backlash. 2. Broken gear or bad bearing. 3. Workpiece is hitting stationary object. 	<ol style="list-style-type: none"> 1. Adjust gears and establish backlash. 2. Replace broken gear or bearing. 3. Stop lathe immediately and correct interference problem.
Tailstock quill will not feed out of tailstock.	<ol style="list-style-type: none"> 1. Quill lock knob is tightened down. 	<ol style="list-style-type: none"> 1. Turn knob counterclockwise.



Cross Slide Leadscrew Adjustment

Backlash is the amount of play found in a lead screw. It can be found by turning the cross slide handwheel in one direction, then turning the handwheel the other direction. When the cross slide begins to move, the backlash has been taken up.

Note: Avoid the temptation to overtighten the cross slide backlash screw. Overtightening will cause excessive wear to the sliding block and lead screw. Reducing backlash to less than 0.001" is impractical and reduces cross slide life.

Backlash is adjusted by tightening or loosening the cap screws shown in **Figure 98**. These screws draw a wedge-type nut against the lead screw and main nut. If you get the gib too tight, loosen the cap screws a few turns, tap the cross slide a few times with a rubber or wooden mallet, and turn the handle slowly back and forth until the handle turns freely. To readjust the backlash, rock the handle back and forth and tighten the screw slowly until the backlash is at approximately 0.001" as indicated on the handwheel dial.



Figure 98. Cross slide backlash adjustment socket head cap screws.

Leadscrew Endplay Adjustment

After a long period of time, you may find that the lead screw for threading operations may develop a bit of end play. This lathe is designed so that play can be removed.

To remove leadscrew end play:

1. DISCONNECT LATHE FROM POWER.
2. Using a 4mm hex wrench, remove the three cap screws and the cover (**Figure 99**).
3. Using a 3mm hex wrench, loosen the retainer set screw (**Figure 99**).
4. Engage the halfnut lever and manually rotate the manual apron feed handwheel back and forth slightly to test for end play. While you are doing this, tighten the retainer until all leadscrew endplay is removed.
5. Tighten the set screw, reinstall the cover, and refill the housing with oil.

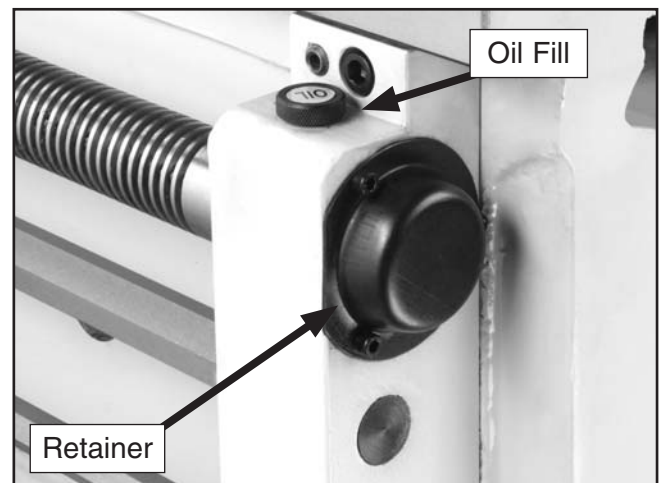


Figure 99. Leadscrew end play adjustment location.



Gib Adjustment

When adjusting the cross slide, tailstock, saddle, and compound rest gib screws (**Figures 100-103**), keep in mind that the goal is to remove sloppiness in the ways without causing the slides to bind. Loose gibs will cause a poor finish on the workpiece and may cause undue wear on the slide. Over-tightening may cause premature wear on the slide, lead screw, and nut.

The cross slide, tailstock, saddle, and compound rest gibs use a tapered piece of iron which is held in position by two gib screws at opposing ends of the gib. When these opposing front and rear gib adjustment screws are turned in opposite directions from each other, "One screw clockwise and the other counterclockwise, or visa versa" the single gib will be pushed fore or aft to fill the loose void in the way. Thus, the play in the slide is removed. If more play is needed adjust the screws so the gib is moved and held in the opposite direction.

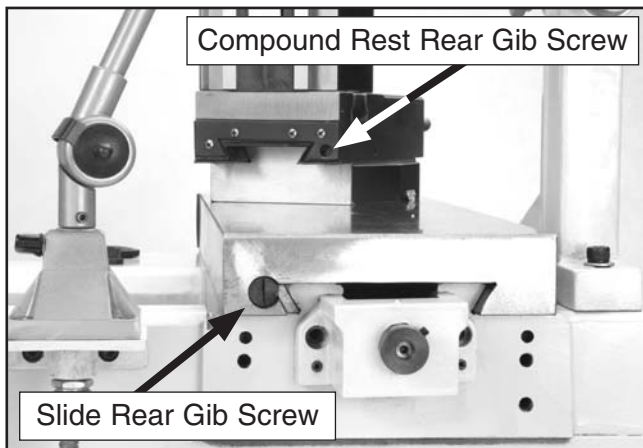


Figure 100. Rear cross slide and compound rest gib screw locations.



Figure 101. Left saddle gib screw.

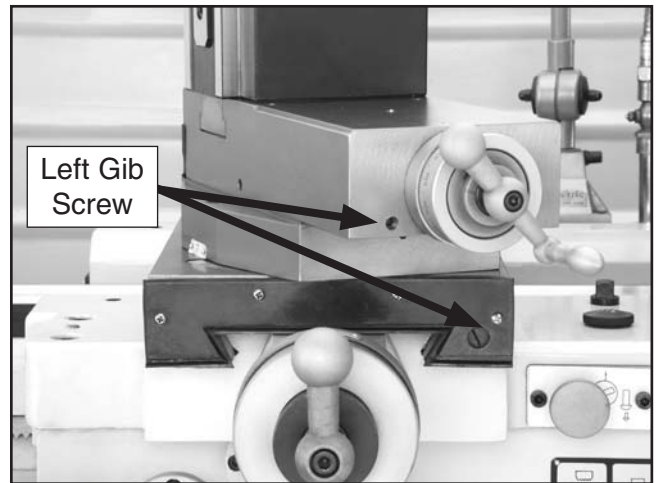


Figure 102. Front cross slide and compound rest gib screw locations.

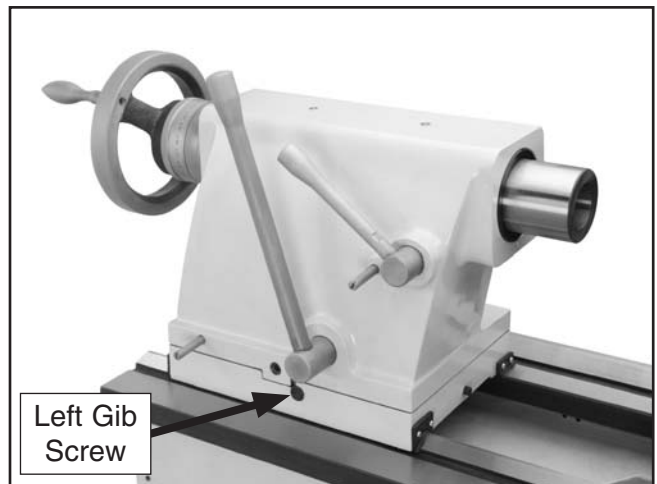


Figure 103. Tailstock gib screw location.



Halfnut Adjustment

When adjusting the halfnut gibs remove the thread dial to expose the two gib screws (**Figure 104**). Your goal is to remove sloppiness in the ways without causing the half nut to bind. You will loosen the jam nuts and turn the two set screws clockwise until slight tension is felt in the set screw. The gibs will then be slightly pre-loaded. Tighten the jam nuts when finished.

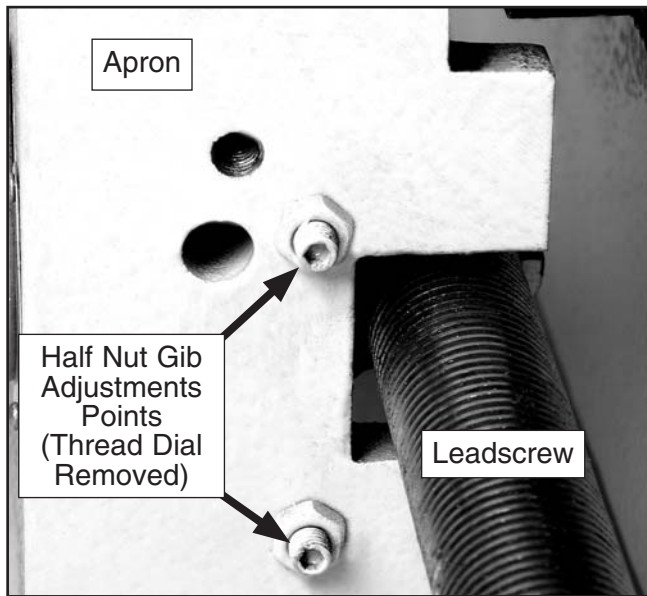


Figure 104. Halfnut gib adjustment.

Feed Clutch Adjustment

This lathe is designed with a feed clutch. This cone type clutch helps protect the apron feed system from overload. The feed clutch comes set from the factory. However, after the lathe becomes broken in, you may have to readjust this setting.

To adjust the clutch release point:

1. Using a 5mm hex wrench, turn the center cap screw clockwise to increase the clutch holding power, and turn counterclockwise to decrease the clutch holding power (**Figure 105**).
2. Start the lathe.
3. Engage the power feed and hold the longitudinal feed handwheel with one hand. The clutch should release within a few seconds without you fighting handwheel rotation. When it does, the holding force is approximately 12 kg.
4. Readjust the clutch screw as required to achieve the 12 kg setting.

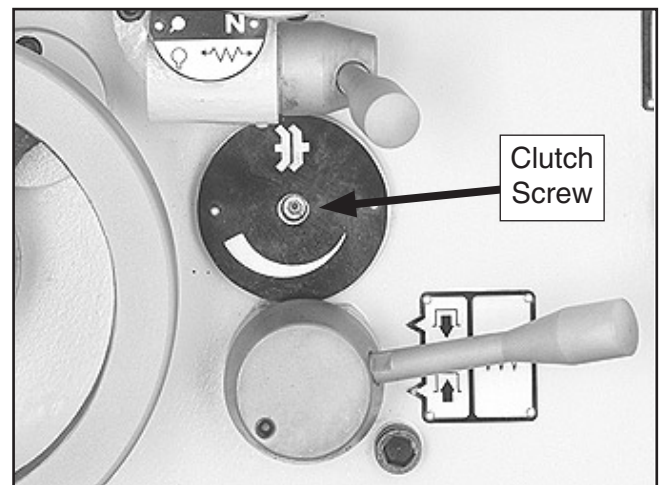


Figure 105. Feed clutch.



V-Belts

After consistent lathe usage, it will be necessary to compensate for belt wear.

To adjust or replace the V-belts on the lathe:

1. DISCONNECT LATHE FROM POWER!
2. Open rear cover on the lathe base (**Figure 106**).
3. Use a 24mm wrench and adjust the belt tension hex nuts (see **Figure 106**) there is approximately 10mm belt deflection on each belt when pressed firmly in the center in between the pulleys.

Note: Replace all three belts as a matched set even if one shows cracking, glazing, or fraying.

4. Reinstall the rear cover.

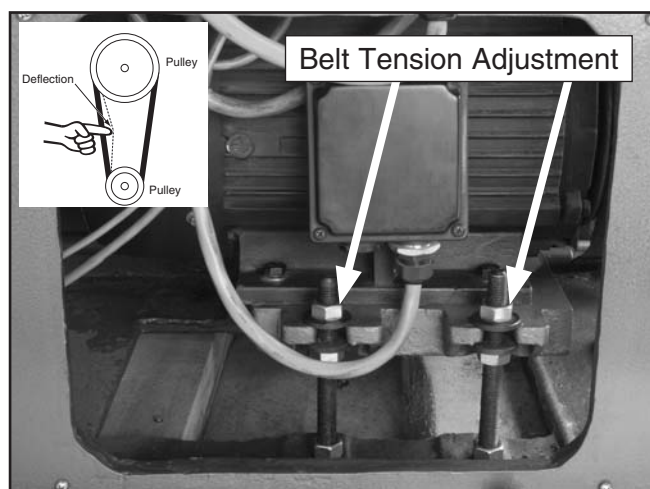


Figure 106. V-belt adjustment.

Brake and Switch

After consistent lathe usage, it will be necessary to compensate for brake lining wear.

To adjust the brake and brake switch:

1. DISCONNECT LATHE FROM POWER!
2. Remove the side motor cover.
3. Use a 16mm wrench and adjust the brake rod (**Figure 107**) so, when the foot pedal is pressed, the brake band firmly clamps the drum. When released the brake band should be loose on the drum.

Note: Replace the brake band when the friction material is worn down to approximately 2mm thick.

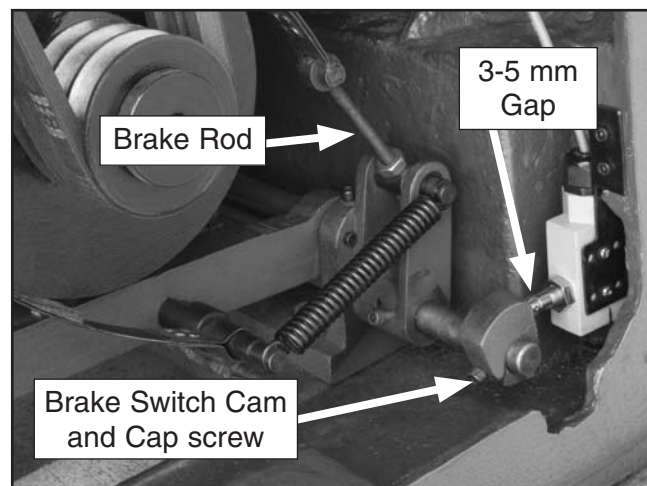


Figure 107. Brake band and switch.

4. Use a 5mm hex wrench and adjust the brake switch cam so when in the released position, there is 3 to 5mm gap between the cam and the brake switch pushrod (**Figure 107**).
5. Reinstall safety cover and test foot brake operation.



Control Panel Electrical

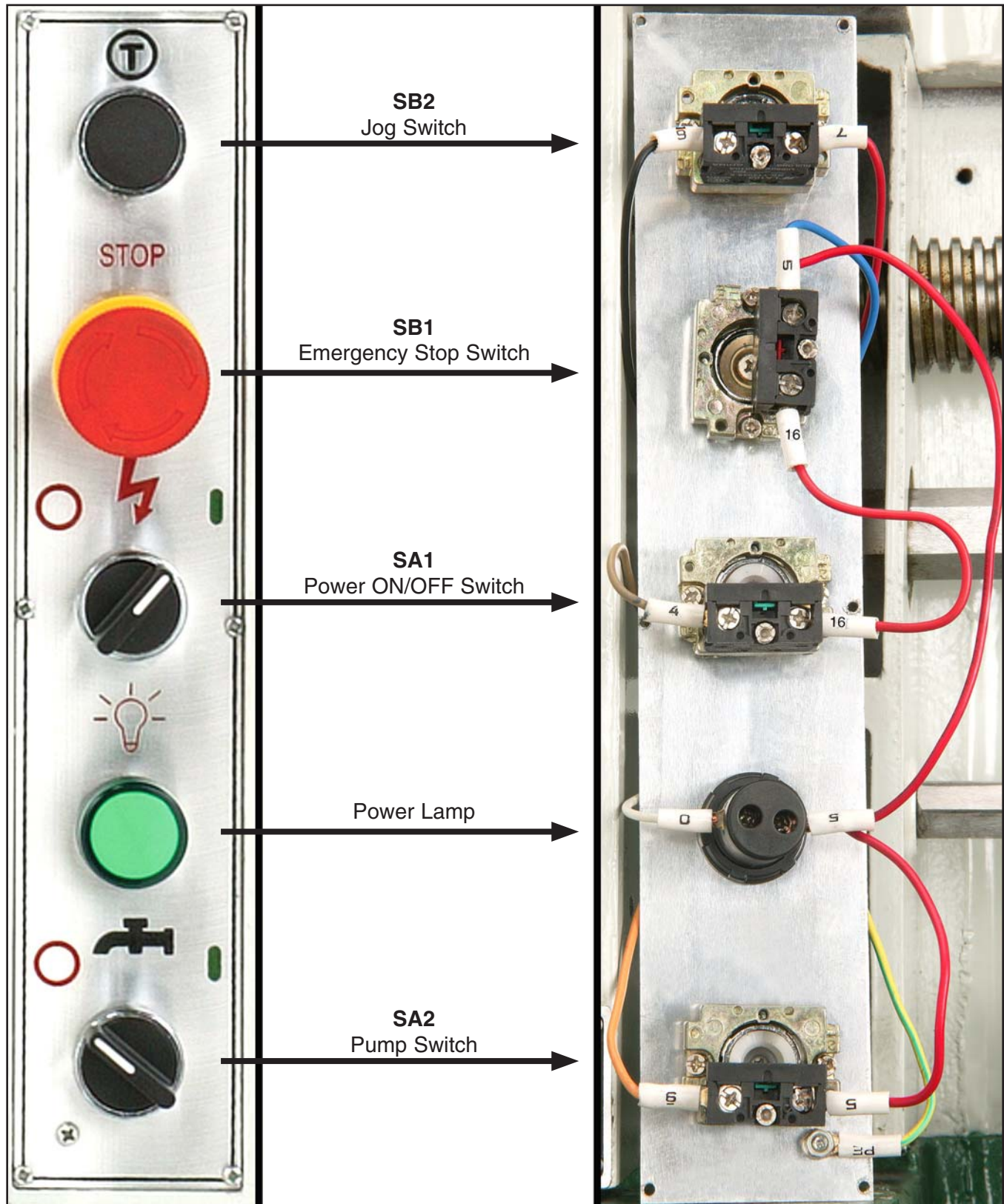


Figure 108. Control panel switches.



Switch and Motor Electrical

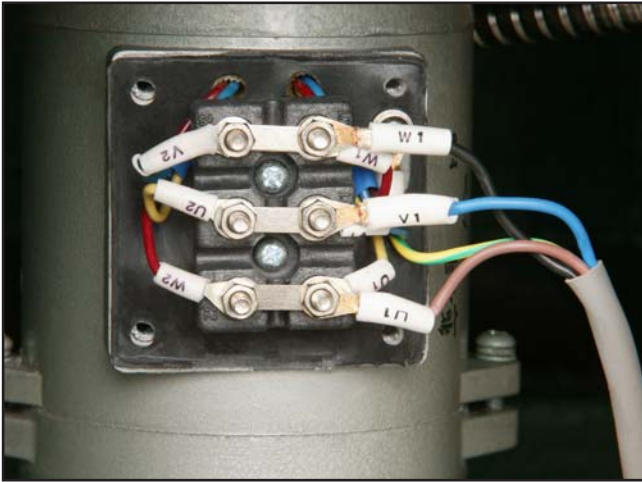


Figure 109. Pump wiring (M2).



Figure 112. Spindle motor wiring (M1).



Figure 110. Spindle rotation switch (SQ1, SQ2).

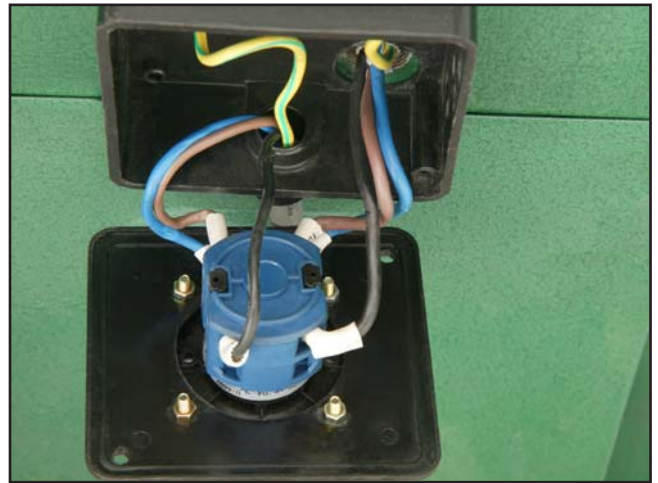


Figure 113. Main power switch (S).



Figure 111. Brake switch (SQ4).



Figure 114. Gear cover limit switch (SQ3).



Main Electrical Box

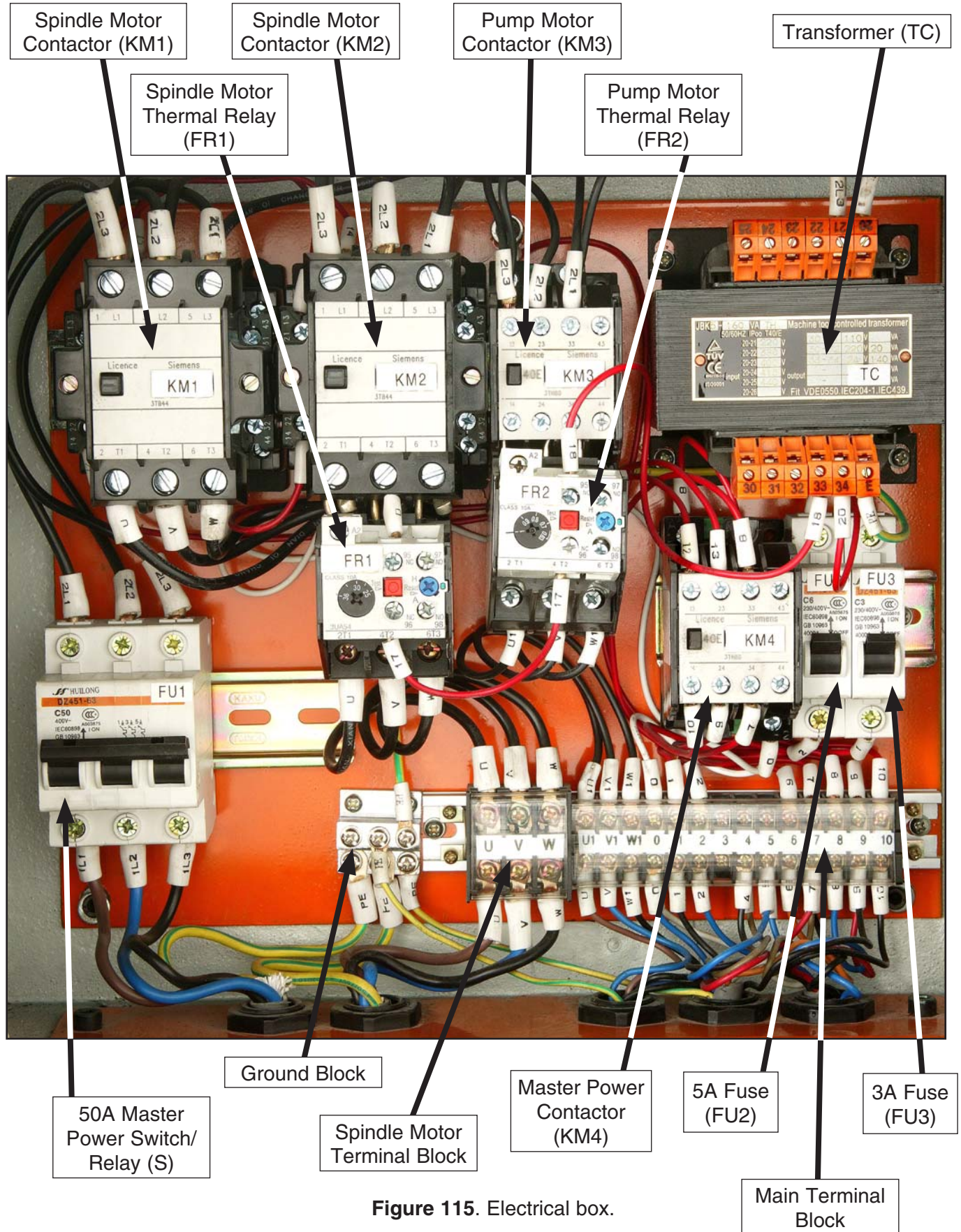


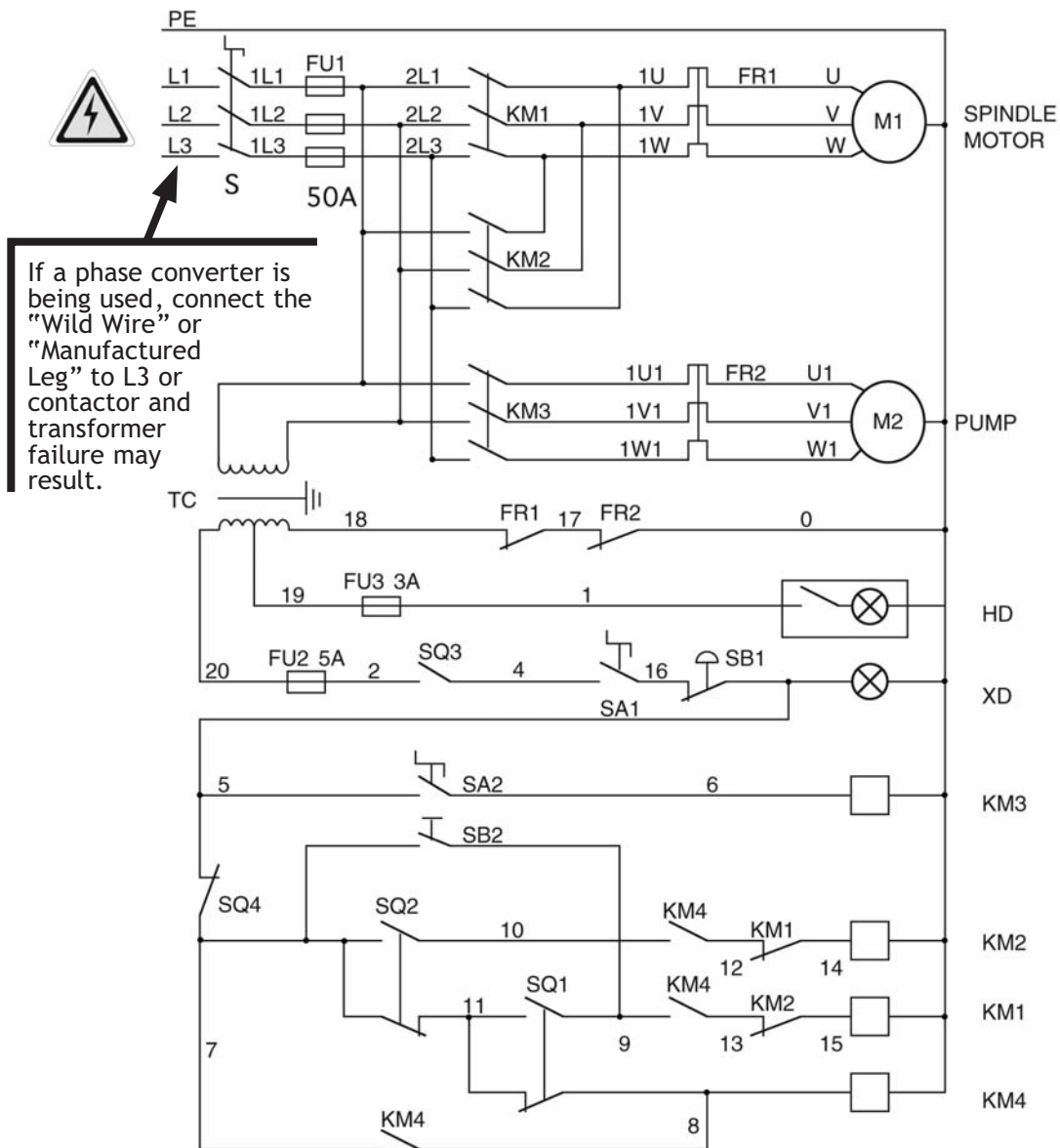
Figure 115. Electrical box.



Model G0600 Electrical Diagram

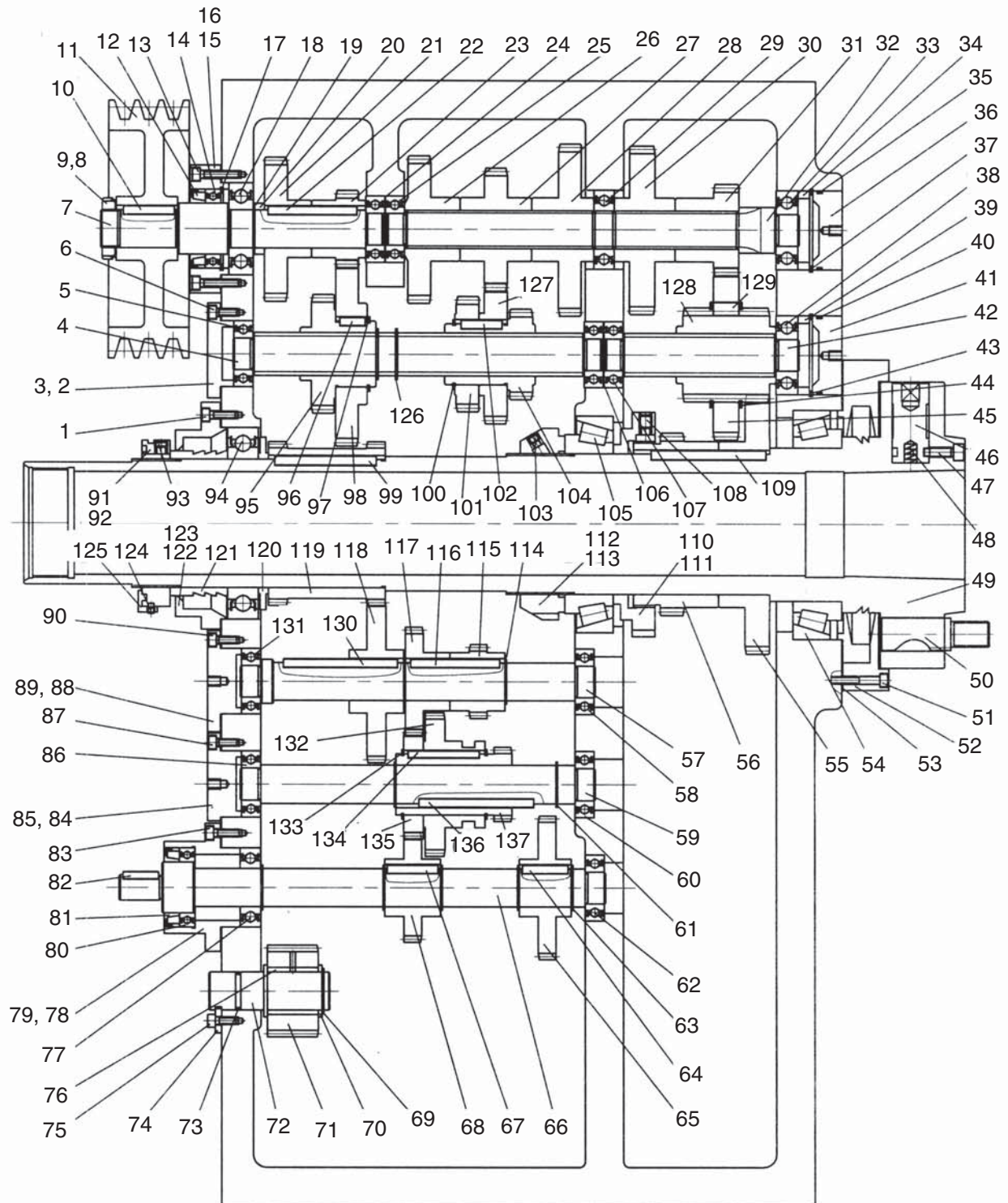


Grizzly
Industrial, Inc.®



Headstock Gear System

(0000 Series Parts)



Headstock Face and Shift System (0000 Series Parts)

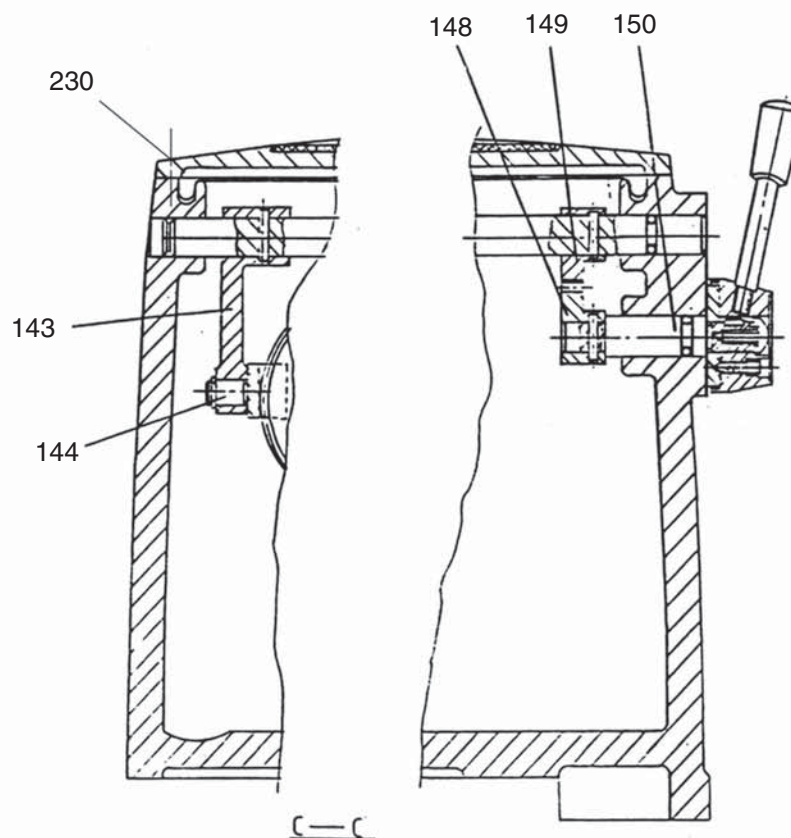
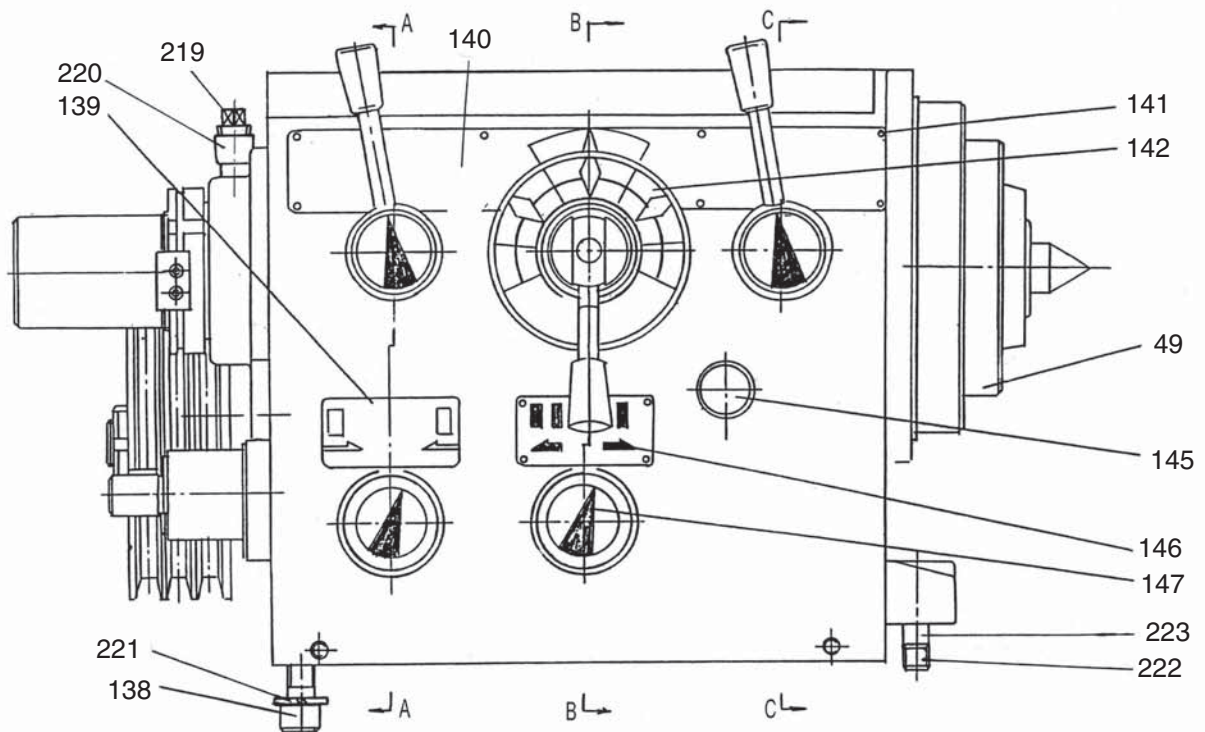


Figure 1 shows two cross-sectional views of a mechanical assembly. The left view is a side profile showing a housing (180) with a central shaft (182) and a component (183). The right view is a more detailed cross-section showing the internal components, including a piston (184), a valve (185), a spring (186), a seal (187), a gasket (188), a bolt (189), a nut (190), a lever (191), a pin (192), a block (193), a plate (194), a block (195), a block (196), a pin (228), and a pin (229).

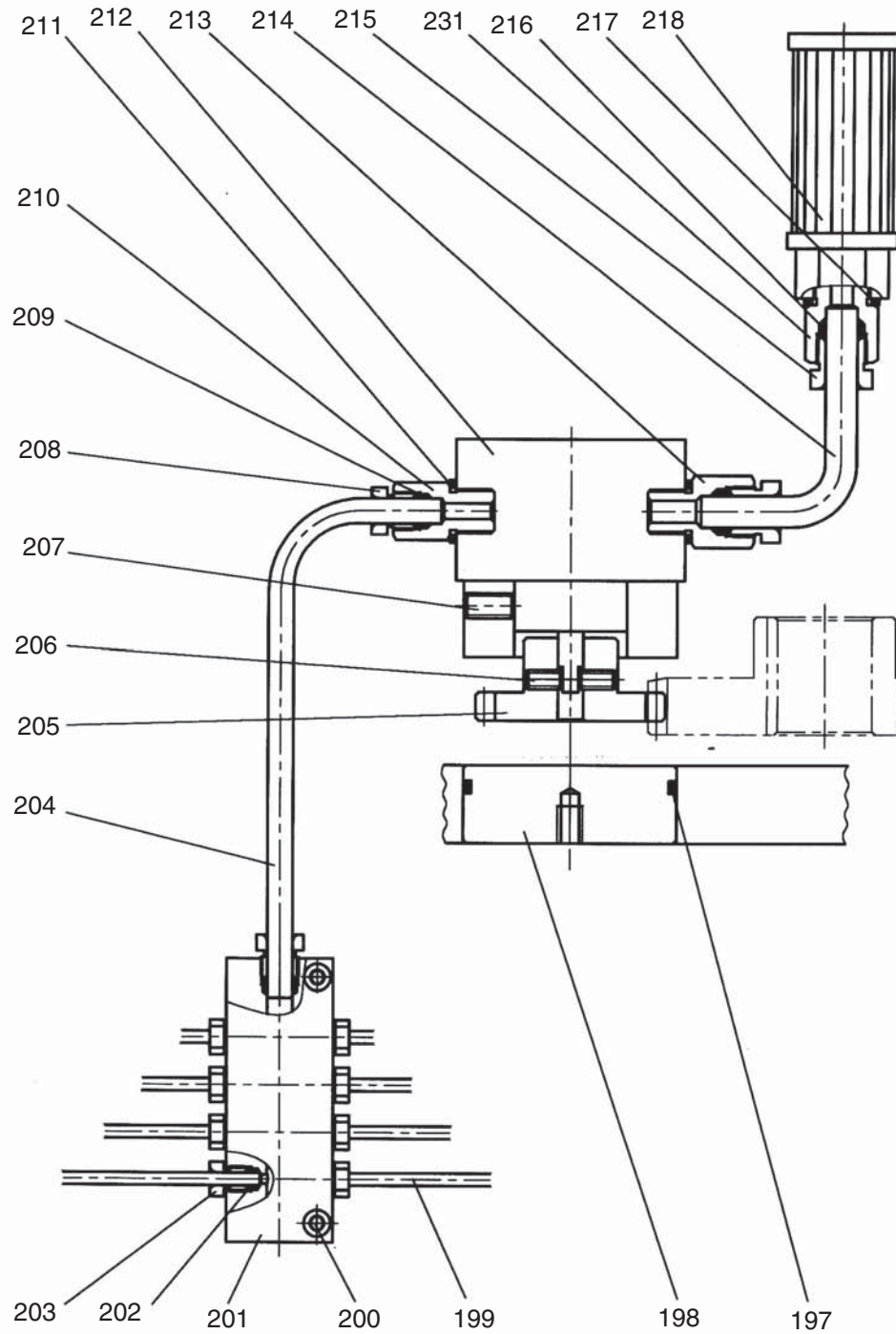
Technical drawing of a mechanical assembly in cross-section, showing two main components joined by a central shaft. The left component is a complex housing with internal features, and the right component is a cylindrical part with a flange. Numerous parts are labeled with reference numerals from 151 to 227.

Reference numerals shown in the drawing include:

- 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 183, 225, 226, 227

Headstock Oil Pump System

(0000 Series Parts)



REF	PART #	DESCRIPTION
1	PSB02M	CAP SCREW M6-1 X 20
2	P06000002	BEARING COVER
3	P06000003	BEARING COVER SEAL
4	P06000004	SPLINE SHAFT
5	P6205	BALL BEARING 6205
6	PSB01M	CAP SCREW M6-1 X 16
7	P06000007	INPUT SHAFT
8	P06000008	SPANNER NUT M30 X 1.5
9	P06000009	LOCK WASHER 30MM
10	PK41M	KEY 8 X 8 X 40MM
11	P06000011	PULLEY
12	P06000012	OIL SEAL
13	PSB07M	CAP SCREW M6-1 X 30
14	P06000014	BALL BEARING 1080908
15	P06000015	BEARING CAP
16	P06000016	BEARING SEAT SEAL
17	PR38M	INT RETAINING RING 62MM
18	P6306	BALL BEARING 6306
19	PR15M	EXT RETAINING RING 30MM
20	P06000020	SPACER
21	P06000021	GEAR 39T X M2.75
22	P06000022	KEY 8 X 8 X 70MM
23	P06000023	GEAR 20T X M2.75
24	P06000024	SPACER
25	P6205	BALL BEARING 6205
26	P06000026	GEAR 40T X M2.75
27	P06000027	GEAR 33T X M2.75
28	P06000028	GEAR 47T X M2.75
29	P6206	BALL BEARING 6206
30	P06000030	GEAR 46T X M2.75
31	P06000031	GEAR 24T X M2.75
32	P06000032	SPLINE SHAFT
33	P6305	BALL BEARING 6305
34	P06000034	SPACER WASHER
35	P06000035	O-RING 56 X 2.65MM
36	P06000036	COVER
37	PR38M	INT RETAINING RING 62MM
38	P6305	BALL BEARING 6305
39	P06000039	LOCK WASHER
40	P06000040	O-RING 56 X 2.65MM
41	P06000041	COVER
42	P06000042	SPLINE SHAFT
43	PR38M	INT RETAINING RING 62MM
44	P06000044	EXT RETAINING RING 75MM
45	P06000045	GEAR 47T X M2.75
46	P06000046	D1-8 CAM LOCK
47	P06000047	SPECIAL D1-8 SCREW
48	P06000048	COMPRESSION SPRING
49	P06000049	SPINDLE
50	P06000050	D1-8 STUD

REF	PART #	DESCRIPTION
51	PSB29M	CAP SCREW M6-1 X 40
52	P06000052	FRONT BEARING COVER
53	P06000053	FRONT BEARING COVER SEAL
54	P06000054	BALL BEARING D2007124E
55	P06000055	GEAR 72T X M2.75
56	P06000056	GEAR 50T X M2.75
57	P06000057	SHAFT
58	P6205	BALL BEARING 6205
59	P06000059	SHAFT
60	P6205	BALL BEARING 6205
61	PR15M	EXT RETAINING RING 30MM
62	P6205	BALL BEARING 6205
63	PR15M	EXT RETAINING RING 30MM
64	PK129M	KEY 8 X 8 X 36MM
65	P06000065	GEAR 48T X M2.25
66	P06000066	OUTPUT SHAFT
67	PK41M	KEY 8 X 8 X 40MM
68	P06000068	GEAR 36T X M2.25
69	PR15M	EXT RETAINING RING 30MM
70	P06000070	SPACER
71	P06000071	GEAR 30T X M2.25
72	P06000072	IDLER SHAFT
73	P06000073	O-RING 30 X 2.4MM
74	P06000074	SPACER
75	PSB01M	CAP SCREW M6-1 X 16
76	P06000076	BRASS BUSHING
77	P6206	BALL BEARING 6206
78	P06000078	BEARING SEAT
79	P06000079	BEARING SEAT SEAL
80	P06000080	BALL BEARING 1080908
81	P06000081	OIL SEAL
82	PK32M	KEY 6 X 6 X 28MM
83	PSB02M	CAP SCREW M6-1 X 20
84	P06000084	BEARING COVER
85	P06000085	BEARING COVER SEAL
86	P6205	BALL BEARING 6205
87	PSB01M	CAP SCREW M6-1 X 16
88	P06000088	BEARING COVER
89	P06000089	BEARING COVER SEAL
90	PSB01M	CAP SCREW M6-1 X 16
91	P06000091	LOCK NUT
92	P06000092	BRASS BUSHING
93	PSS30M	SET SCREW M10-1.5 X 10
94	P06000094	BALL BEARING 120
95	P06000095	GEAR 32T X M2.75
96	PK107M	KEY 8 X 8 X 20MM
97	PR26M	INT RETAINING RING 52MM
98	P06000098	GEAR 51T X M2.75
99	P06000099	KEY 10 X 10 X 80MM



REF	PART #	DESCRIPTION
100	PR32M	EXT RETAINING RING 48MM
101	P06000101	GEAR 31T X M2.75
102	PK09M	KEY 8 X 8 X 32MM
103	PSS16M	SET SCREW M8-1.25 X 10
104	P06000104	GEAR 24T X M2.75
105	P06000105	BALL BEARING D2007122E
106	P06000106	SPACER
107	P6205	BALL BEARING 6205
108	PSS75M	SET SCREW M10-1.5 X 16
109	P06000109	KEY 10 X 10 X 90MM
110	P06000110	LOCK NUT
111	P06000111	BRASS BUSHING
112	P06000112	LOCK NUT
113	P06000113	BRASS BUSHING
114	PR15M	EXT RETAINING RING 30MM
115	P06000115	GEAR 24T X M2.25
116	P06000116	KEY 8 X 8 X 70MM
117	P06000117	GEAR 36T X M2.25
118	P06000118	GEAR 55T X M2.25
119	P06000119	GEAR 55T X M2.25/55T X M2.25
120	P06000120	SHAFT RING
121	P06000121	OIL RING
122	P06000122	REAR BEARING COVER
123	P06000123	BEARING COVER SEAL
124	PSS03M	SET SCREW M6-1 X 8
125	P06000125	COUNTERWEIGHT
126	P06000126	EXT RETAINING RING 34MM
127	P06000127	GEAR 38T X M2.75
128	P06000128	GEAR 25T X M2.75
129	P06000129	KEY
130	P06000130	KEY 8 X 8 X 90MM
131	P6205	BALL BEARING 6205
132	P06000132	GEAR 48T X M2.25
133	PR32M	EXT RETAINING RING 48MM
134	PK49M	KEY 6 X 6 X 55MM
135	P06000135	GEAR 36T X M2.25
136	P06000136	KEY 8 X 8 X 90MM
137	P06000137	GEAR 24T X M2.25
138	P06000138	CAP SCREW M16-2 X 55
139	P06000139	INDICATOR PLATE
140	P06000140	INDICATOR PLATE
141	P06000141	RIVET 2 X 5MM
142	P06000142	INDICATOR PLATE
143	P06000143	LEVER
144	P06000144	FORK
145	P06000145	OIL SIGHT GLASS
146	P06000146	INDICATOR PLATE
147	P06000147	POINTER PLATE
148	P06000148	GEAR 31T X M2
149	P06000149	GEAR 35T X M2

REF	PART #	DESCRIPTION
150	P06000150	SHAFT
151	P06000151	FORK
152	PEC03M	E-CLIP 10MM
153	P06000153	LEVER
154	PRP26M	ROLL PIN 5 X 26MM
155	P06000155	SHAFT
156	P06000156	GUIDE PIN
157	P06000157	SET SCREW M10-1.5 X 25
158	P06000158	O-RING 22 X 2.4MM
159	P06000159	LOCK WASHER
160	P06000160	SPECIAL DOME SCREW
161	PSS20M	SET SCREW M8-1.25 X 8
162	P06000162	LEVER
163	P06000163	SHAFT
164	PK10M	KEY 5 X 5 X 12MM
165	P06000165	HANDLE HUB
166	P06000166	SPACER PLATE
167	P06000167	LEVER
169	P06000169	O-RING 20 X 2.4MM
170	PSS02M	SET SCREW M6-1 X 6
171	PRP26M	ROLL PIN 5 X 26MM
172	P06000172	GEAR 35T X M2
173	P06000173	GEAR 25T X M2
174	P06000174	RUBBER MAT
175	P06000175	HEADSTOCK COVER
176	P06000176	SHAFT
177	P06000177	PLUG
178	PRP05M	ROLL PIN 5 X 30MM
179	P06000179	FORK
180	P06000180	LEVER
181	P06000181	HEADSTOCK
182	P06000182	FORK
183	PEC12M	E-CLIP 12MM
184	P06000184	GEAR 42T X M2
185	P06000185	GEAR 18T X M2
186	P06000186	HUB
187	P06000187	SHAFT
188	P06000188	HANDLE LEVER BLOCK
189	PK10M	KEY 5 X 5 X 12MM
190	PRP39M	ROLL PIN 4 X 20MM
191	P06000191	LEVER
192	PK10M	KEY 5 X 5 X 12MM
193	P06000193	HANDLE HUB
194	P06000194	SHAFT
195	P06000195	LEVER
196	P06000196	FORK
197	P06000197	O-RING 68 X 3.1MM
198	P06000198	COVER
199	P06000199	BRASS TUBE 4 X 0.75"



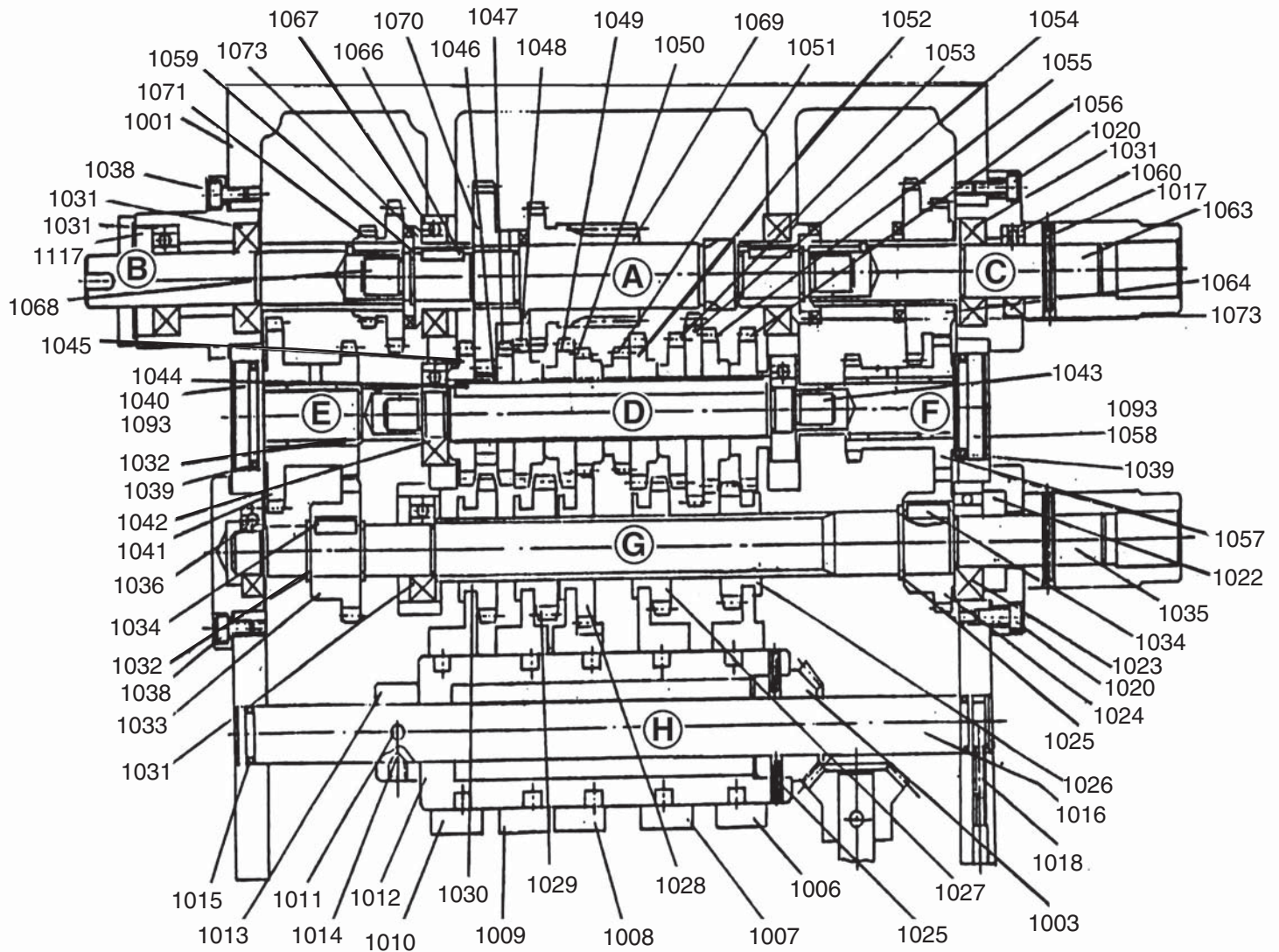
REF	PART #	DESCRIPTION
200	PSB38M	CAP SCREW M5-.8 X 25
201	P06000201	MANIFOLD
202	P06000202	SEAL SLEEVE
203	P06000203	BRASS FITTING
204	P06000204	BRASS TUBE 8 X 0.75"
205	P06000205	GEAR 20T X M2.75
206	PSB26M	CAP SCREW M6-1 X 12
207	PSB01M	CAP SCREW M6-1 X 16
208	P06000208	BRASS FITING
209	P06000209	SEALING SLEEVE
210	P06000210	BRASS FITTING
211	P06000211	SEAL WASHER
212	P06000212	OIL PUMP
213	P06000213	BRASS FITTING
214	P06000214	BRASS TUBE 10 X 0.75"
215	P06000215	BRASSS FITTING

REF	PART #	DESCRIPTION
216	P06000216	SEAL SLEEVE
217	PLW12M	SEAL WASHER
218	P06000218	SCREEN
219	P06000219	PLUG
220	P06000220	TUBE FITTING
221	PLW10M	LOCK WASHER 16MM
222	P06000222	CAP SCREW M16-2 X 45
223	P06000223	ANCHOR PIN 16 X 60
224	PSB01M	CAP SCREW M6-1 X 16
225	P06000225	HANDLE HUB
226	PS22M	PHLP HD SCR M5-.8 X 25
227	P06000227	OIL PLUG
228	P06000228	STEEL BALL 1/4"
229	P06000229	COMPRESSION SPRING
230	PSB14M	CAP SCREW M8-1.25 X 20
231	P06000231	BRASS FITTING



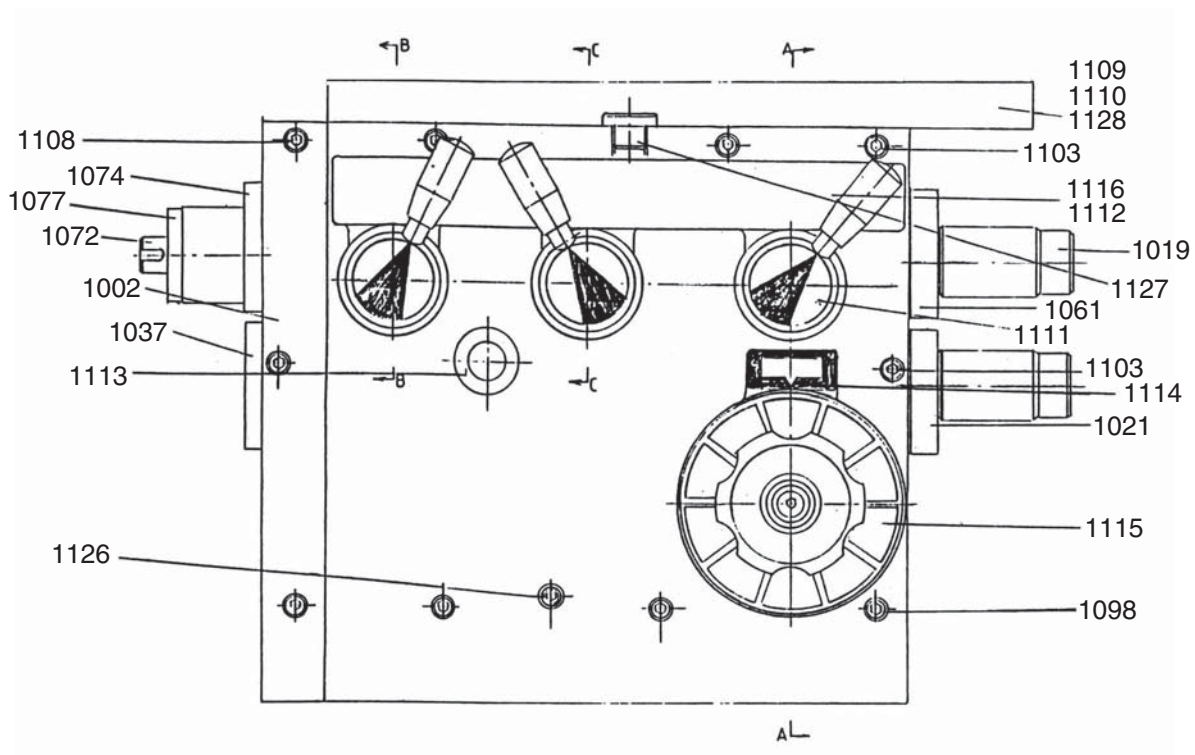
Quick Change Gearbox Gear System

(1000 Series Series Parts)



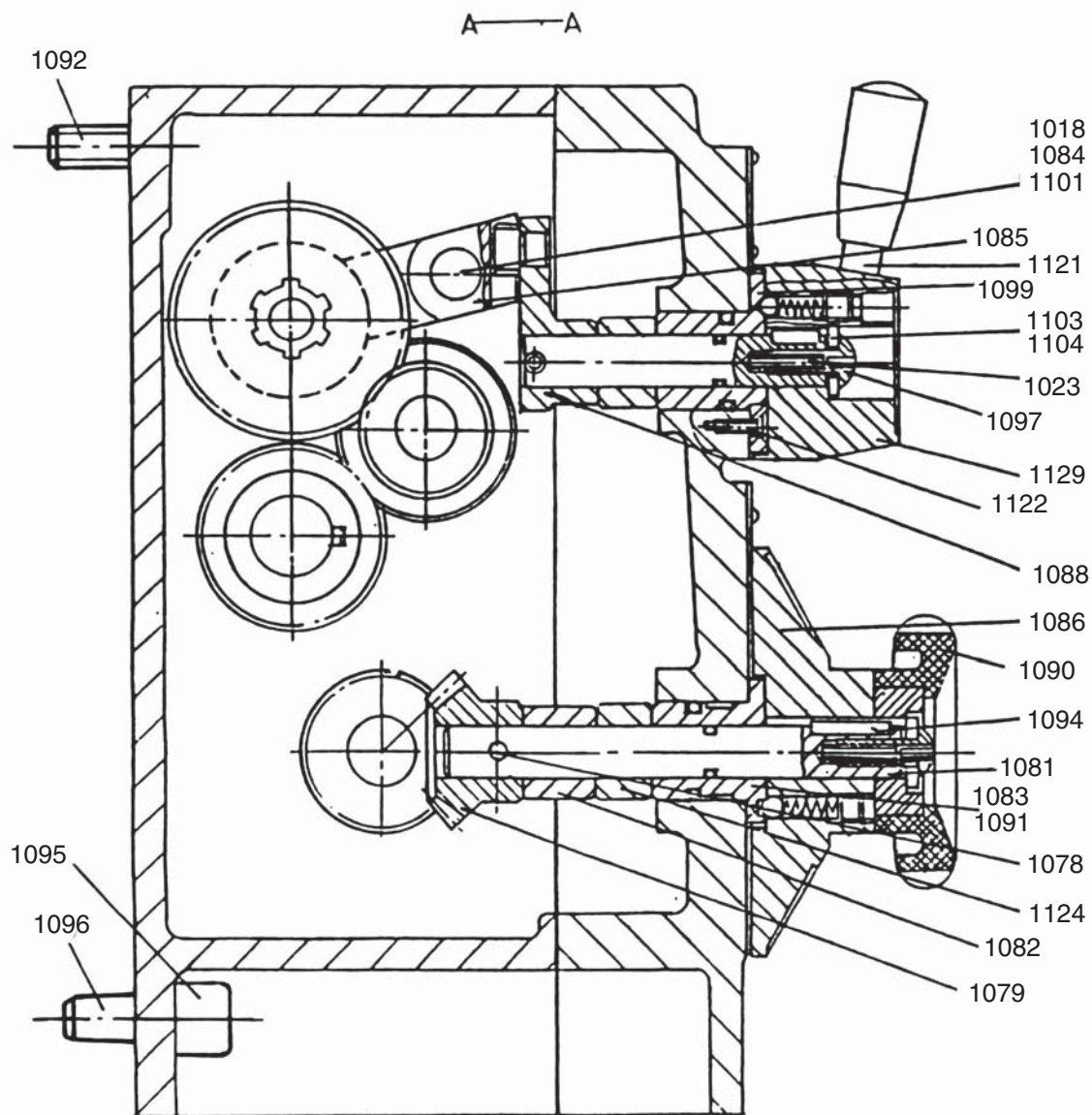
Quick Change Gearbox Face

(1000 Series Parts)



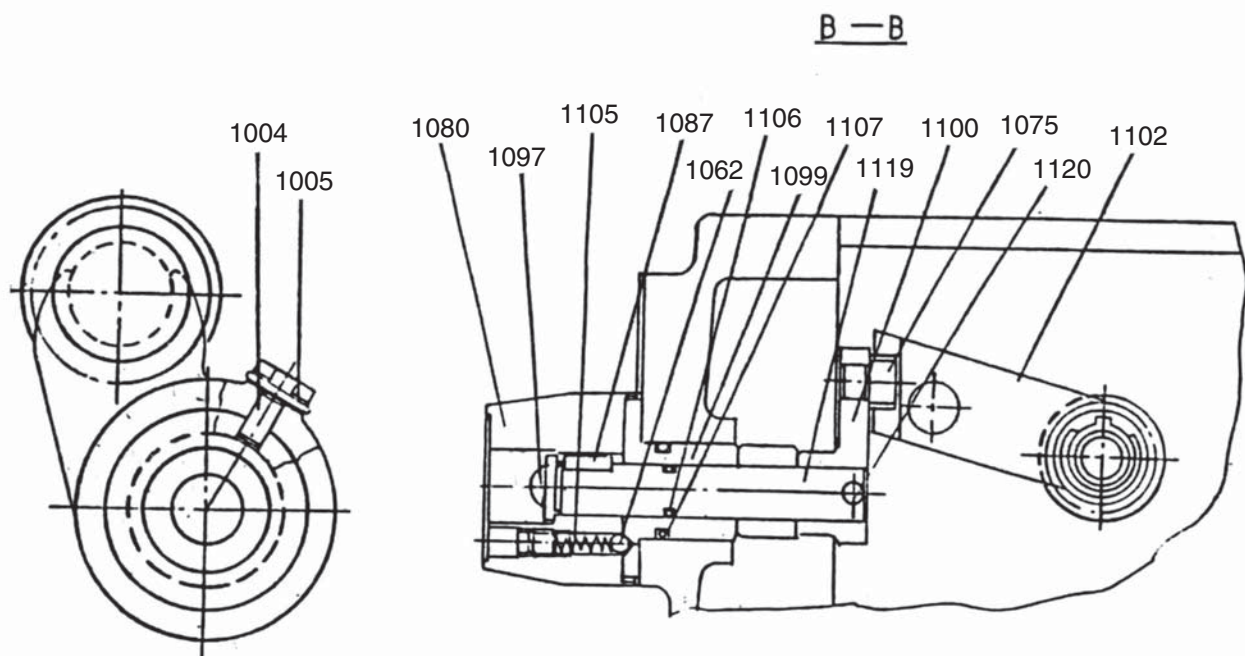
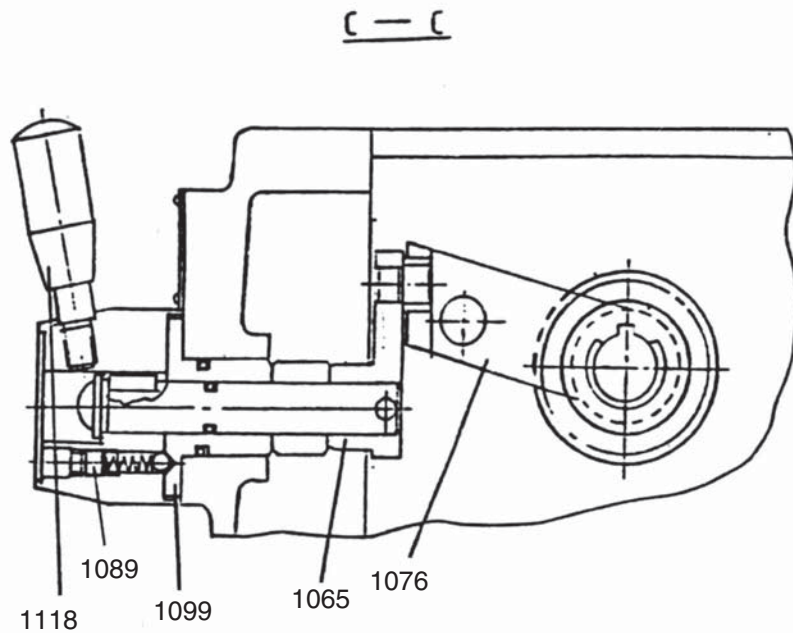
Quick Change Gearbox Shift System

(1000 Series Parts)



Quick Change Gearbox Shift System

(1000 Series Parts)



REF	PART #	DESCRIPTION
1001	P06001001	GEAR BOX
1002	P06001002	FRONT COVER
1003	P06001003	BEVEL GEAR
1004	P06001004	HEX BOLT
1005	P06001005	FLAT WASHER
1006	P06001006	SHIFTER CLAW
1007	P06001007	SHIFTER CLAW
1008	P06001008	SHIFTER CLAW
1009	P06001009	SHIFTER CLAW
1010	P06001010	SHIFTER CLAW
1011	PRP91M	ROLL PIN 5 X 35MM
1012	P06001012	CAM SHIFTER
1013	P06001013	RETAINER
1014	PSS16M	SET SCREW M8-1.25 X 10
1015	P06000158	O-RING 22 X 2.4MM
1016	P06001016	H-SHAFT
1017	PRP91M	ROLL PIN 5 X 35MM
1018	PSS25M	SET SCREW M6-1 X 20
1019	P06001019	RECEIVER HUB
1020	PSB02M	CAP SCREW M6-1 X 20
1021	P06001021	END CAP (RIGHT)
1022	P06001022	OIL SEAL
1023	P06001023	BALL BEARING 180204
1024	P06001024	GEAR 36T X M1.25
1025	PR11M	EXT RETAINING RING 25MM
1026	P06001026	GEAR 22T X 12D.P
1027	P06001027	GEAR 22T X M2.25
1028	P06001028	GEAR 33T X 14D.P
1029	P06001029	GEAR 22T X 11D.P
1030	P06001030	GEAR 22T X 10D.P
1031	P06001031	BALL BEARING 180104
1032	P06001032	EXT RETAINING RING 20MM
1033	P06001033	GEAR 22T X 10D.P
1034	PK07M	KEY 6 X 6 X 20MM
1035	P06001035	G-SHAFT
1036	P06001036	BALL BEARING 180103
1037	P06001037	COVER
1038	PSB26M	CAP SCREW M6-1 X 12
1039	P06001039	O-RING 35 X 3.5MM
1040	P06001040	E-SHAFT
1041	P06001041	GEAR 20T X 10D.P/40T X 14D.P
1042	P06001042	BALL BEARING 180203
1043	P06001043	D-SHAFT
1044	P06001044	KEY 6 X 6 X 146MM
1045	P06001045	GEAR 19T X 10D.P
1046	P06001046	GEAR 18T X M2
1047	P06001047	GEAR 20T X 10D.P
1048	P06001048	GEAR 22T X 11D.P
1049	P06001049	GEAR 23T X 11D.P
1050	P06001050	GEAR 24T X 14D.P

REF	PART #	DESCRIPTION
1051	P06001051	GEAR 27T X 14D.P
1052	P06001052	GEAR 24T X M2.25
1053	P06001053	GEAR 26T X M2.25
1054	P06001054	GEAR 36T X M2
1055	P06001055	GEAR 27T X 12D.P
1056	P06001056	GEAR 28T X 12D.P
1057	P06001057	GEAR 50T X M1.25/20T X M2
1058	P06001058	F-SHAFT
1059	PR07M	EXT RETAINING RING 18MM
1060	P06001060	THRUST BEARING 8104
1061	P06001061	END CAP
1062	P06001062	STEEL BALL 1/4"
1063	P06001063	C-SHAFT
1064	P06001064	GEAR 35T X M1.25/35T X M2
1065	P06001065	ARM
1066	PK48M	KEY 4 X 4 X 20MM
1067	P06001067	BALL BEARING 180105
1068	P06001068	A-SHAFT
1069	P06001069	GEAR 18T X M2/23T X 11D.P
1070	P06001070	GEAR 36T X M2
1071	P06001071	GEAR 19T X 10D.P/19T X 14D.P
1072	P06001072	B-SHAFT
1073	P06001073	CLUTCH
1074	P06001074	CAP
1075	P06001075	FORK
1076	P06001076	FORK
1077	P06001077	SPACER
1078	PRP05M	ROLL PIN 5 X 30MM
1079	P06001079	BEVEL GEAR
1080	P06001080	SPEED CHANGE HUB
1081	P06001081	LEVER HUB
1082	P06001082	SPACER
1083	P06001083	SHAFT SLEEVE
1084	P06001084	O-RING 16 X 2.4MM
1085	P06001085	SHIFT FORK
1086	P06001086	DIAL HUB
1087	PK19M	KEY 5 X 5 X 14MM
1088	P06001088	ARM
1089	P06001089	CAP SCREW M8-1.25 X 8
1090	P06001090	HAND KNOB
1091	PSB40M	CAP SCREW M8-1.25 X 35
1092	PSB71M	CAP SCREW M10-1.5 X 60
1093	PSB01M	CAP SCREW M6-1 X 16
1094	PK131M	KEY 5 X 5 X 28MM
1095	PSB72M	CAP SCREW M10-1.5 X 30
1096	P06001096	TAPER PIN 10 X 45MM
1097	P06001097	SPECIAL DOME SCREW
1098	PSB49M	CAP SCREW M6-1 X 60
1099	P06001099	DETENT PLATE



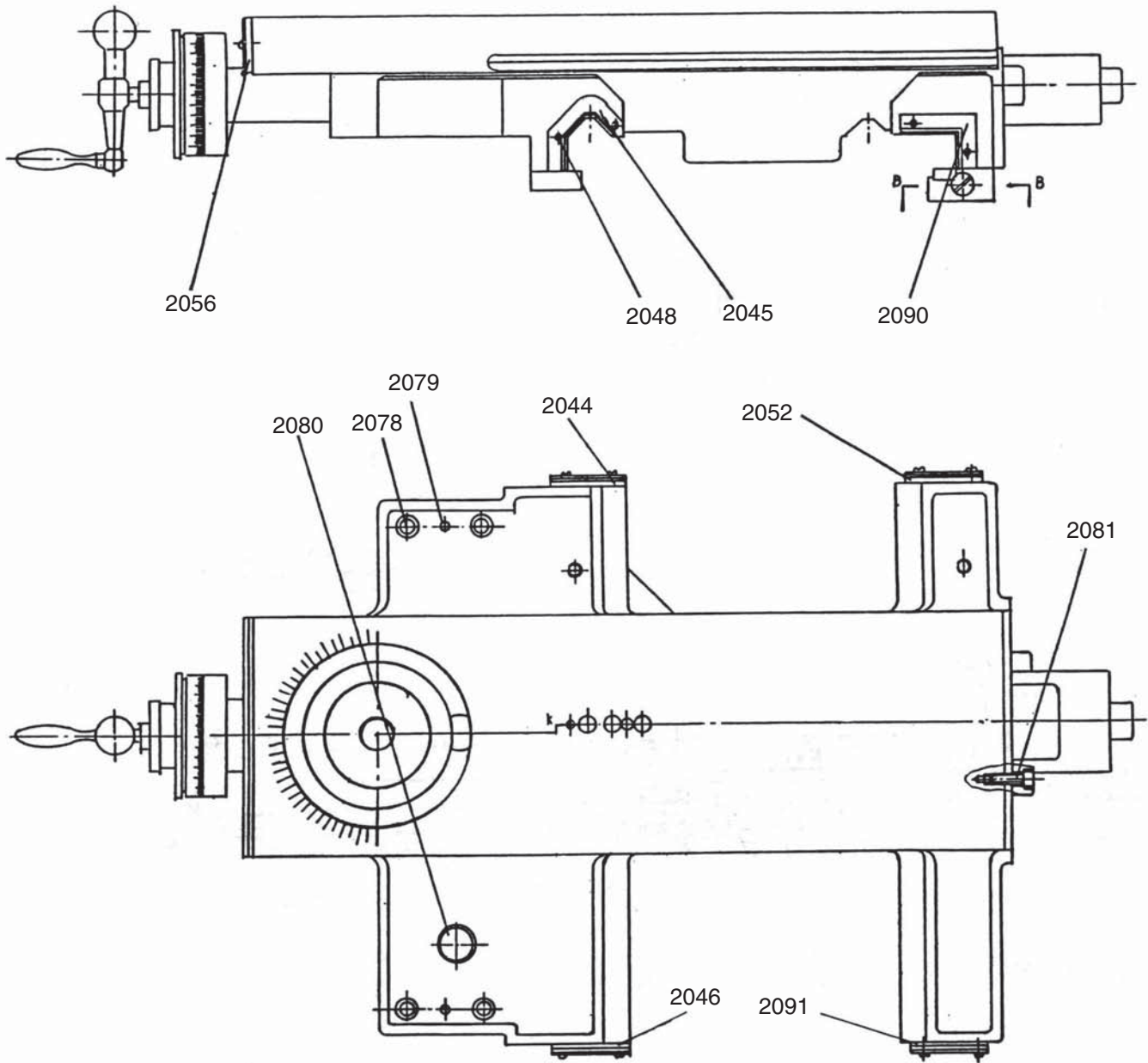
REF	PART #	DESCRIPTION
1100	P06001100	ARM
1101	P06001101	SHAFT
1102	P06001102	FORK
1103	PSB37M	CAP SCREW M6-1 X 50
1104	P06001104	LOCK WASHER
1105	P06001105	COMPRESSION SPRING
1106	P06001084	O-RING 16 X 2.4MM
1107	P06000073	O-RING 30 X 3.1MM
1108	PSB07M	CAP SCREW M6-1 X 30
1110	PSB07M	CAP SCREW M6-1 X 30
1111	P06001111	POINTER PLATE
1112	P06001112	INDICATOR PLATE
1113	P06001113	OIL SIGHT GLASS
1114	P06001114	INDICATOR PLATE
1115	P06001115	INDICATOR PLATE

REF	PART #	DESCRIPTION
1116	P06000141	RIVET 2 X 5MM
1117	P06001117	OIL-SEAL
1118	P06001118	FEMALE KNOB M10-1.5
1119	P06001119	SHAFT
1120	PRP05M	ROLL PIN 5 X 30MM
1121	P06001121	LEVER
1122	PS09M	PHLP HD SCR M5-.8 X 10
1123	PS22M	PHLP HD SCR M5-.8 X 25
1124	P06001124	SPACER
1125	PRP24M	ROLL PIN 5 X 16MM
1126	P06001126	OIL PLUG
1127	P06001127	OIL PLUG
1128	P06001128	TOP COVER
1129	P06001129	HANDLE HUB



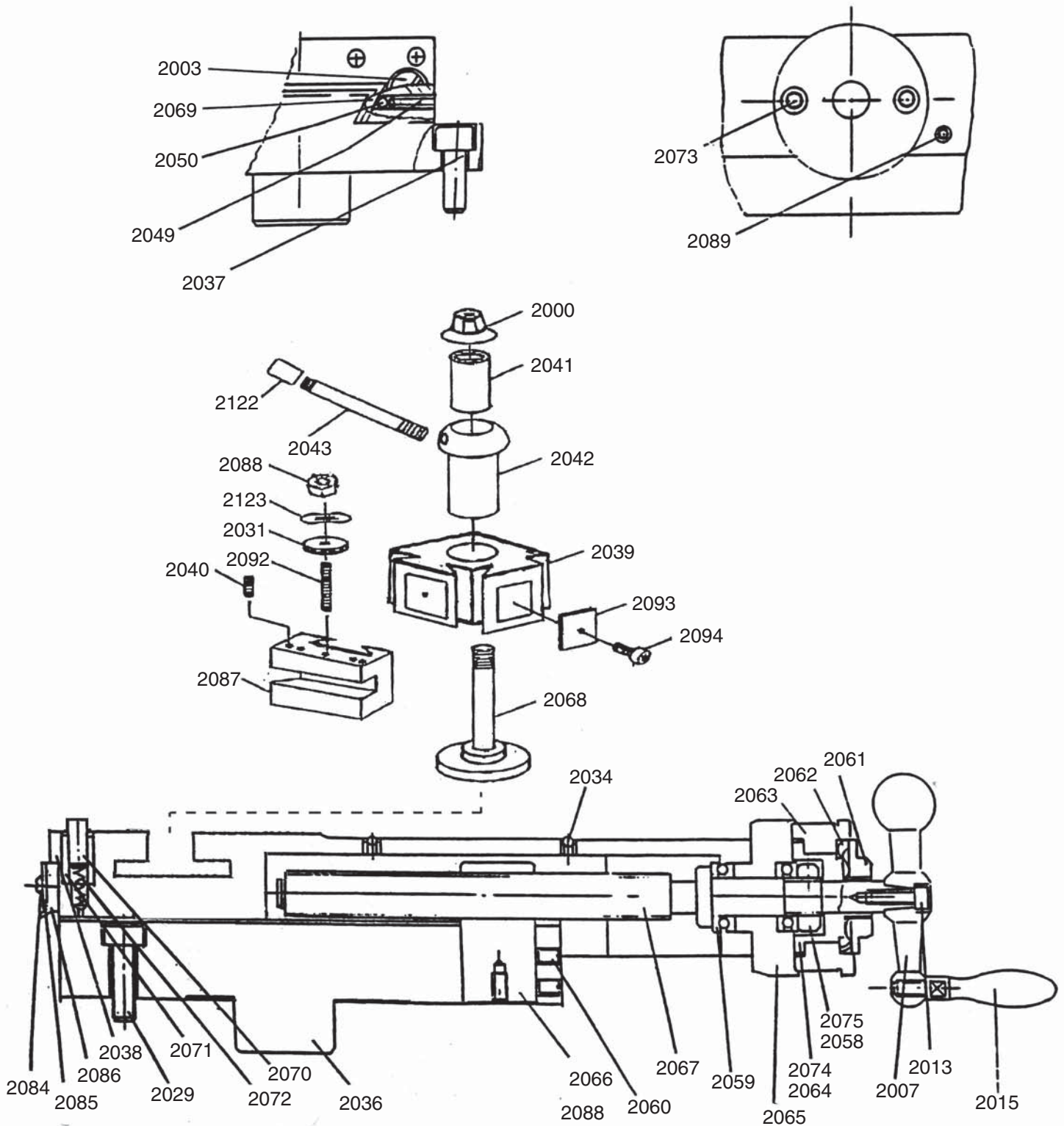
Carriage

(2000 Series Parts)



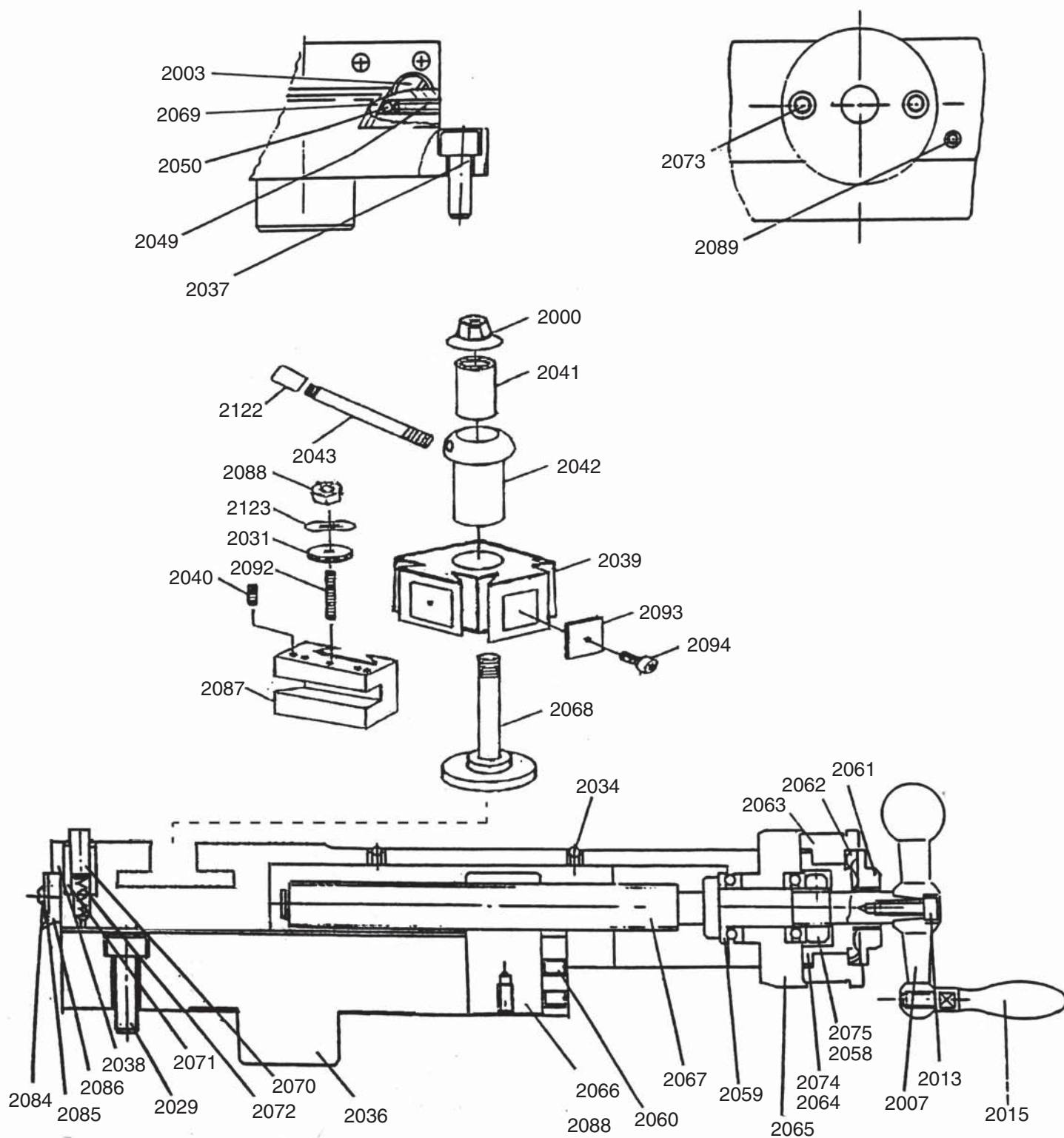
Cross Slide and Carriage

(2000 Series Parts)



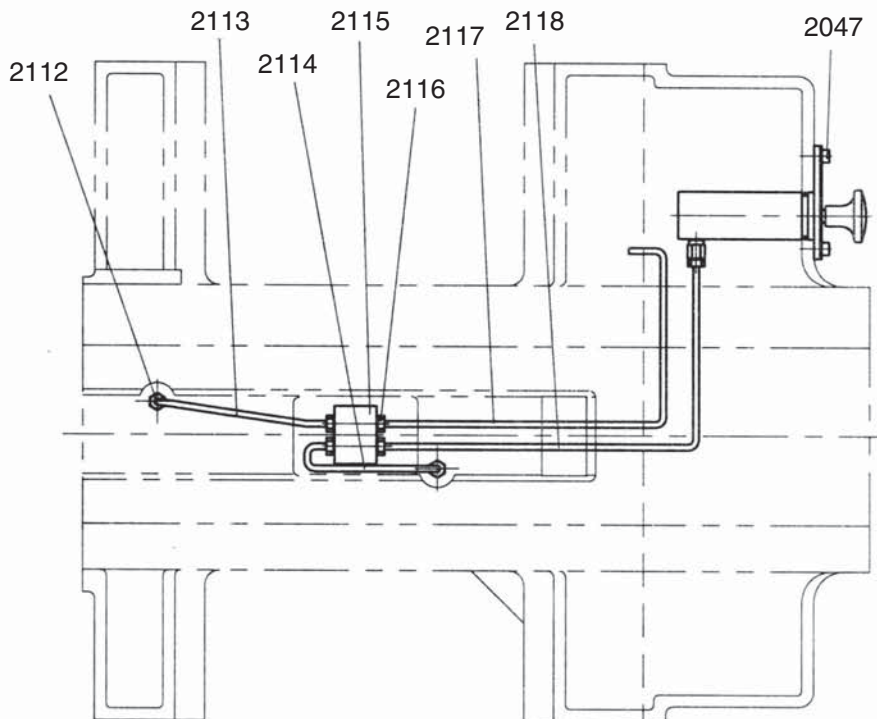
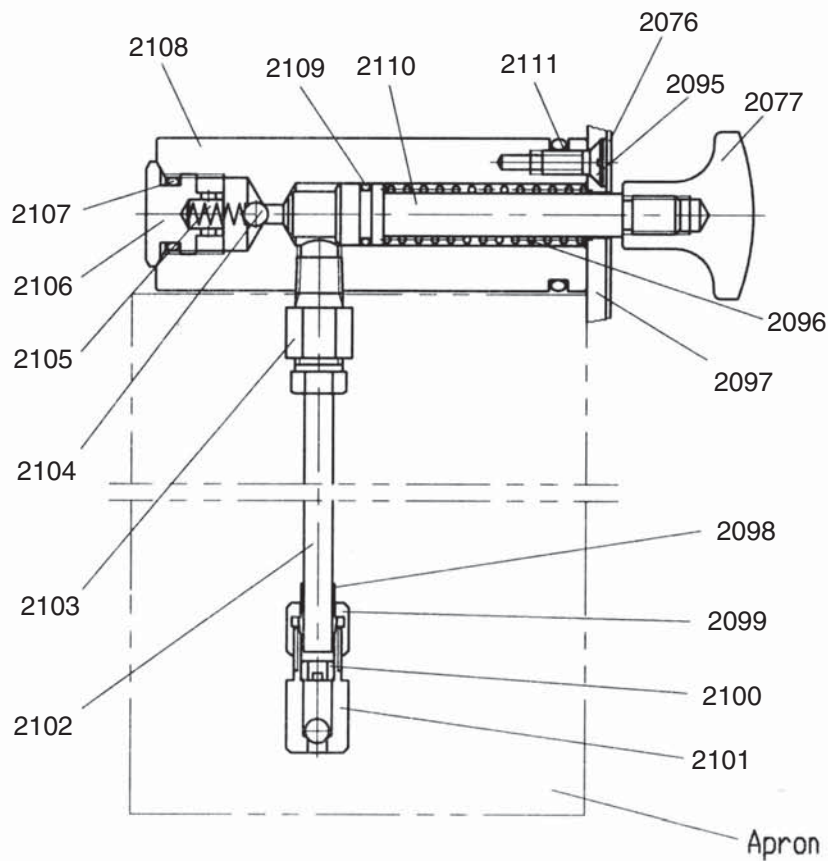
Compound Rest and Tool Post

(2000 Series Parts)



Carriage Oil Pump System

(2000 Series Parts)



REF	PART #	DESCRIPTION
2000	P06002000	FLANGE NUT M20-2.5
2001	P06002001	SADDLE
2002	P06002002	NUT (INCH)
2003	P06002003	GIB SCREW
2004	PSB48M	CAP SCREW M6-1 X 35
2005	P06002005	GIB
2006	PSB68M	CAP SCREW M6-1 X 8
2007	P06002007	HANDLE
2008	P06002008	BRACKET
2009	P06002009	THRUST BEARING 8101
2010	P06002010	HEX NUT
2011	P06002011	CROSS FEED SCREW (INCH)
2012	P06002012	CROSS FEED PINION
2013	PSB04M	CAP SCREW M6-1 X 10
2014	P06002014	BRACKET
2015	P06002015	HANDLE
2016	PSS03M	SET SCREW M6-1 X 8
2017	P06002017	CLUTCH-DIAL
2018	P06002018	BALL OILER
2019	P06002019	CROSS FEED DIAL
2020	P06002020	WAVY WASHER
2021	P06002021	BARREL NUT
2022	P06002022	CRACK HANDLE
2023	PSB11M	CAP SCREW M8-1.25 X 16
2024	P06002024	HANDLE
2025	P06002025	GIB (LEFT-FRONT)
2026	PSB13M	CAP SCREW M8-1.25 X 30
2027	P06002027	GIB CRADLE
2028	P06002028	GIB
2029	PSB90M	CAP SCREW M10-1.5 X 55
2030	P06002030	CARRIAGE CLAMP
2031	P06002031	KNURLED WASHER
2032	P06002032	CROSS SLIDE COVER
2033	PSB13M	CAP SCREW M8-1.25 X 30
2034	P06002034	BALL OILER
2035	P06002035	HEX NUT
2037	PSB47M	CAP SCREW M10-1.5 X 40
2038	P06002038	COMPOUND REST
2039	P06002039	TOOL POST SPECIAL 500 SERIES
2040	P06002040	SQUARE HEAD BOLT M12-1.75 X 50
2041	P06002041	BARREL SLEEVE
2042	P06002042	HANDLE HUB
2043	P06002043	LEVER M12-1.75
2044	P06002044	RUBBER WIPER
2045	P06002045	RUBBER WIPER
2046	P06002046	RUBBER WIPER
2047	PS08M	PHLP HD SCR M5-.8 X 12
2048	PS02M	PHLP HD SCR M4-.7 X 12
2049	PSB52M	CAP SCREW M8-1.25 X 10
2050	P06002050	STEEL BALL 1/4"

REF	PART #	DESCRIPTION
2051	P06002051	GIB
2052	P06002052	RUBBER WIPER
2053	P06002053	CARRIAGE CLAMP
2054	P06002054	GIB SCREW
2055	P06002055	RUBBER WIPER
2056	P06002056	WIPER
2057	P06002057	SET SCREW M8-1.25 X 70
2058	P06002058	SPANNER NUT
2059	P06002059	THRUST BEARING 8102
2060	PSS01M	SET SCREW M6-1 X 10
2061	P06002061	BARREL NUT
2062	P06002062	WAVY WASHER
2063	P06002063	DIAL-COMPOUND REST (INCH)
2064	P06002064	CLUTCH DIAL
2065	P06002065	DIAL HOUSING
2066	P06002066	HALF NUT (INCH)
2067	P06002067	LEAD SCREW
2068	P06002068	TOOL POST SHAFT
2069	P06002069	GIB
2070	P06002070	GUIDE PIN
2071	P06002071	SLEEVE
2072	P06002072	COMPRESSION SPRING
2073	PSB02M	CAP SCREW M6-1 X 20
2074	PSS31M	SET SCREW M5-.8 X 8
2075	PSB85M	CAP SCREW M6-1 X 6
2076	P06002076	END PLATE
2077	P06002077	HANDLE
2078	PSB71M	CAP SCREW M10-1.5 X 60
2079	P06002079	TAPER PIN 8 X 60MM
2080	P06002080	OIL PLUG
2081	PSB14M	CAP SCREW M8-1.25 X 20
2082	PSB02M	CAP SCREW M6-1 X 20
2083	P06002083	GIB (FRONT)
2084	PS02M	PHLP HD SCR M4-.7 X 12
2085	P06002085	RUBBER WIPER
2086	P06002086	RUBBER WIPER
2087	P06002087	TOOL HOLDER SPECIAL SERIES
2088	PN09M	HEX NUT M12-1.75
2089	PSB12M	CAP SCREW M8-1.25 X 40
2090	P06002090	RUBBER WIPER
2091	P06002091	RUBBER WIPER
2092	P06002092	STUD M12-1.75 X 60
2093	P06002093	PISTON FOOT
2094	P06002094	CAP SCREW M16-2 X 12
2095	PFH07M	FLAT HD SCR M5-.8 X 10
2096	P06002096	COMPRESSION SPRING
2097	P06002097	BOTTOM PLATE
2098	P06002098	TUBE FITTING
2099	P06002099	TUBE NUT

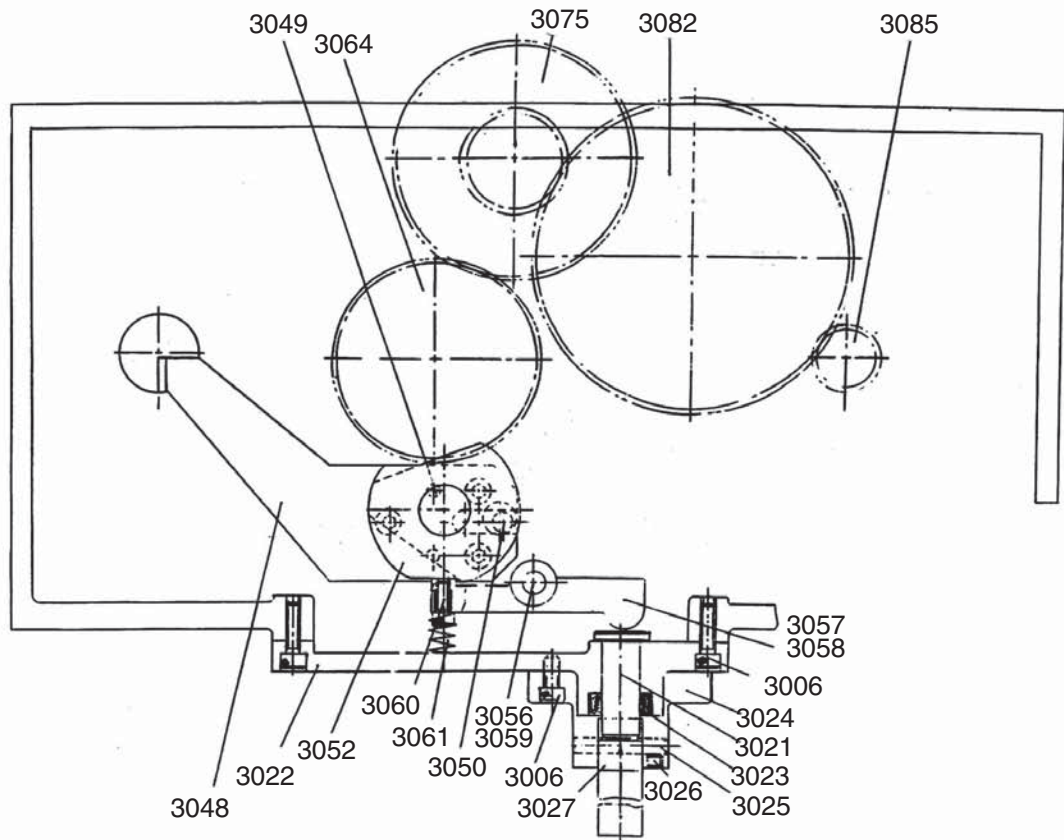
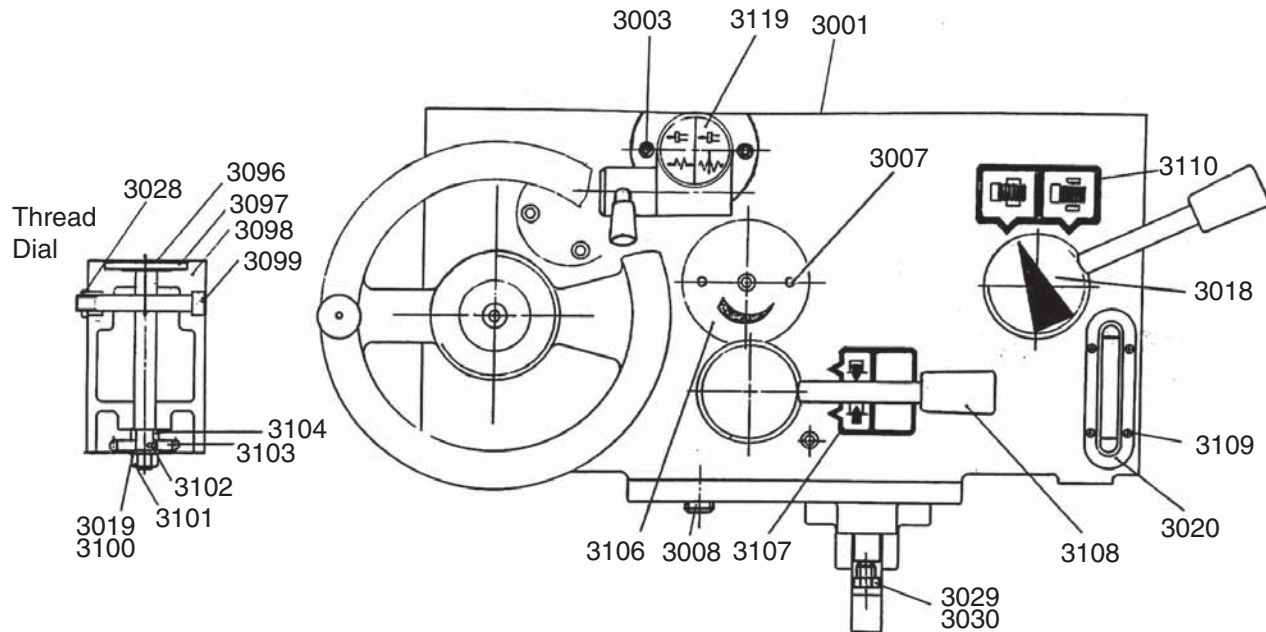


REF	PART #	DESCRIPTION
2100	P06002100	SLEEVE
2101	P06002101	CHECK VALVE
2102	P06002102	BRASS TUBE 6 X 170MM
2103	P06002103	TUBE FITTING
2104	P06002104	STEEL BALL 5MM
2105	P06002105	COMPRESSION SPRING
2106	P06002106	END PLUG
2107	P06001084	O-RING 16 X 2.4MM
2108	P06002108	PUMP BODY
2109	P06002109	O-RING 9 X 1.8MM
2110	P06002110	PISTON ROD
2111	P06002111	O-RING 32 X 3.1MM

REF	PART #	DESCRIPTION
2112	P06002112	TUBE FITTING
2113	P06002113	BRASS TUBE 4 X 200MM
2114	P06002114	BRASS TUBE 4 X 170MM
2115	P06002115	MANIFOLD
2116	P06002116	SLEEVE AND FITTING
2117	P06002117	BRASS TUBE 4 X 390MM
2118	P06002118	BRASS TUBE 4 X 410MM
2119	PR58M	EXT RETAINING RING 24MM
2120	P06002120	GEAR 19T X M2
2121	PK70M	KEY 8 X 8 X 12MM
2122	P06002122	FEMALE KNOB M12-1.75
2123	P06002123	FEMALE KNOB M12-1.75

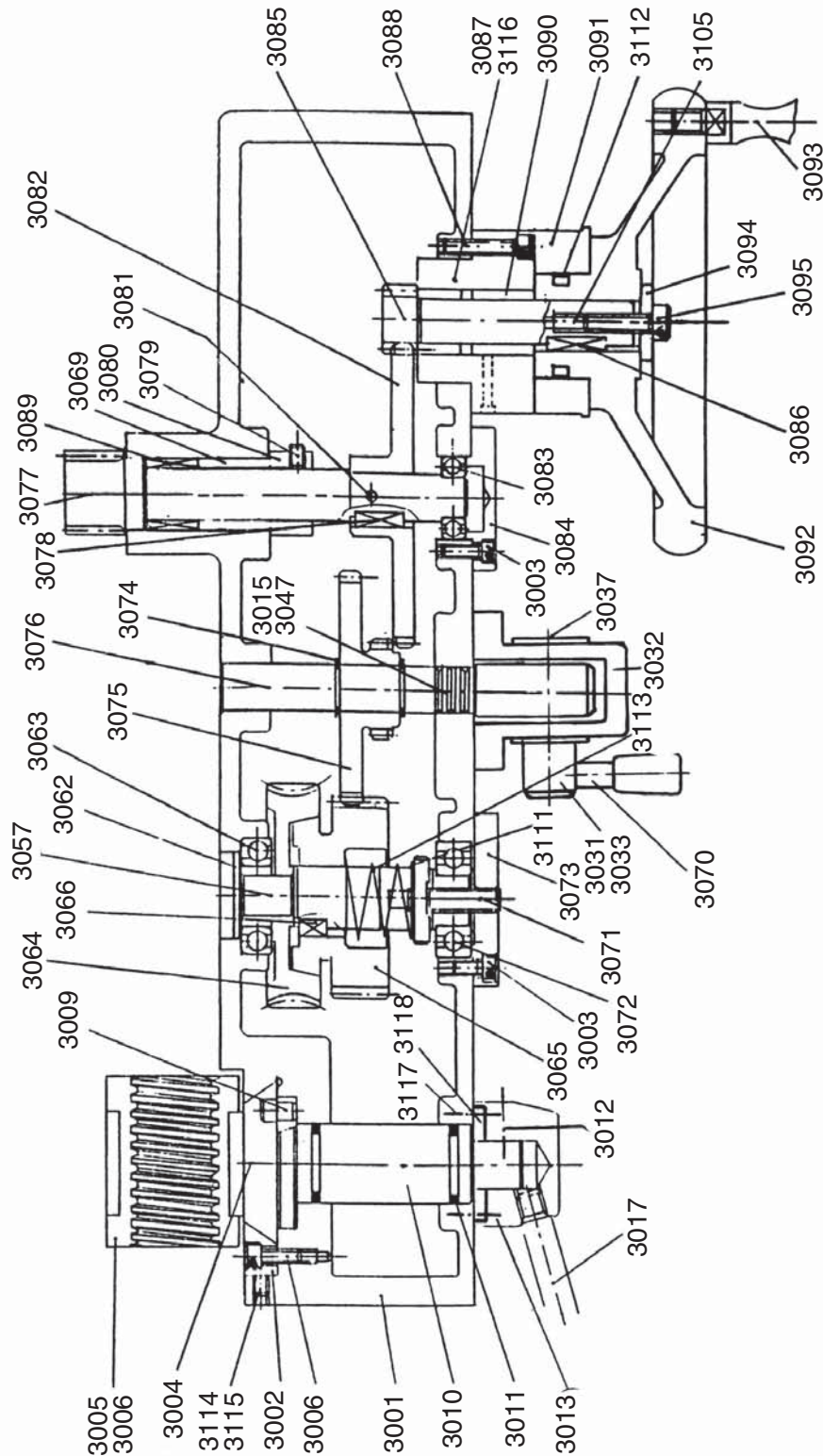


Apron Face, Thread Dial, Auto Stop System (3000 Series Parts)



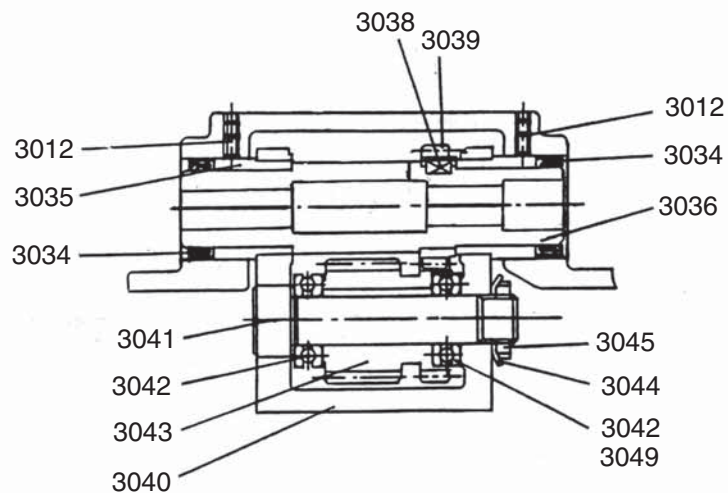
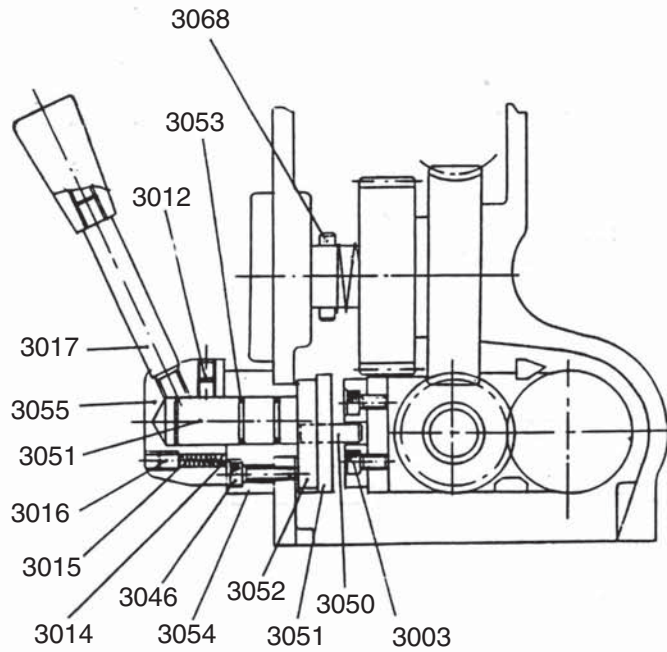
Apron Gearing, Halfnut, Feed System

(3000 Series Parts)



Apron Feed Rod, Clutch and Lever System

(3000 Series Parts)



REF	PART #	DESCRIPTION
3001	P06003001	APRON CASE
3002	P06003002	GIB
3003	PSB26M	CAP SCREW M6-1 X 12
3004	P06003004	LEAD NUT ASSY (INCH)
3005	P06003005	HAFT NUT (INCH)
3006	PSB01M	CAP SCREW M6-1 X 16
3007	P06000141	RIVET 2 X 5MM
3008	P06003008	OIL PLUG
3009	P06003009	KEY
3010	P06003010	SHAFT
3011	P06002111	O-RING 32 X 3.5MM
3012	PSS16M	SET SCREW M8-1.25 X 10
3013	P06003013	SHAFT SLEEVE
3014	P06003014	STEEL BALL 1/4"
3015	P06003015	COMPRESSION SPRING
3016	PSB52M	CAP SCREW M8-1.25 X 10
3017	P06003017	LEVER
3018	P06003018	POINTER PLATE
3019	PRP35M	ROLL PIN 5 X 10MM
3020	P06003020	OIL SIGHT
3021	P06003021	GUIDE PIN
3022	P06003022	BOTTOM COVER
3023	P06003023	OIL SEAL
3024	P06003024	BRACKET
3025	P06003025	DOWEL PIN 8 X 40MM
3026	PSB85M	CAP SCREW M6-1 X 6
3027	P06003027	LEVER
3028	P06003028	SPACER
3029	PSS19M	SET SCREW M8-1.25 X 30
3030	PN03M	HEX NUT M8-1.25
3031	P06003031	LEVER HUB
3032	P06003032	CHANGE SLEEVE
3033	PS09M	PHLP HD SCR M5-.8 X 10
3034	P06003034	OIL SEAL
3035	P06003035	BUSHING
3036	P06003036	FEED ROD SLEEVE
3037	P06003037	PLUG
3038	PK81M	KEY 6 X 6 X 12MM
3039	P06003039	GEAR 24T X M2
3040	P06003040	WORM SEAT
3041	P06003041	SHAFT
3042	P06001060	THRUST BEARING 8104
3043	P06003043	WORM GEAR
3044	P06003044	TAB WASHER 20MM
3045	P06003045	SPANNER NUT M20-1.5
3046	PSB02M	CAP SCREW M6-1 X 20
3047	P06003047	STEEL BALL 7/32"
3048	P06003048	BLOCK
3049	P06003049	FLAT WASHER
3050	P06003050	DOWEL PIN 8 X 25MM

REF	PART #	DESCRIPTION
3051	P06003051	SHAFT
3052	P06003052	BUFFER
3053	P06000169	O-RING 20 X 2.4MM
3054	P06003054	SLEEVE
3055	P06003055	LEVER HUB
3056	PR01M	EXT RETAINING RING 10MM
3057	P06003057	LEVER SHAFT
3058	PSB58M	CAP SCREW M8-1.25 X 12
3059	P06003059	SPECIAL SCREW
3060	PS05M	PHLP HD SCR M5-.8 X 8
3061	P06003061	COMPRESSION SPRING
3062	P06003062	COVER
3063	P06001067	BALL BEARING 180105
3064	P06003064	WORM GEAR
3065	P06003065	GEAR 36T X M2
3066	PK70M	KEY 8 X 8 X 12MM
3067	P06003067	SHAFT
3068	P06003068	GUIDE PIN
3069	P06003069	SLEEVE
3070	P06003070	HANDLE LEVER
3071	PSS73M	SET SCREW M10-1.5 X 30
3072	P6204	BALL BEARING 6204
3073	P06003073	COVER
3074	PR09M	EXT RETAINING RING 20MM
3075	P06003075	GEAR 46T X M2/18T X M2
3076	P06003076	SHAFT
3077	P06003077	PINION
3078	PK07M	KEY 6 X 6 X 20MM
3079	PSB58M	CAP SCREW M8-1.25 X 12
3080	P06003080	SPACER
3081	P06003081	CAP SCREW M8-1.25 X 8
3082	P06003082	GEAR 61T X M2
3083	P06003083	BALL BEARING 103
3084	P06003084	COVER
3085	P06003085	SHAFT
3086	PK45M	KEY 6 X 6 X 24MM
3087	P06003087	SEAT
3088	PSB06M	CAP SCREW M6-1 X 25
3089	P06003089	NEEDLE BEARING 4644903
3090	P06003090	BEARING 2010
3091	P06003091	DIAL-RACK
3092	P06003092	HAND WHEEL
3093	P06003093	HANDLE
3094	P06003094	FLAT WASHER
3095	P06003095	SPECIAL SCREW
3096	P06003096	DIAL FACE
3097	P06003097	DIAL INDICATOR SHAFT
3098	P06003098	THREAD DIAL BODY
3099	P06003099	CAP SCREW M8-1.25 X 85



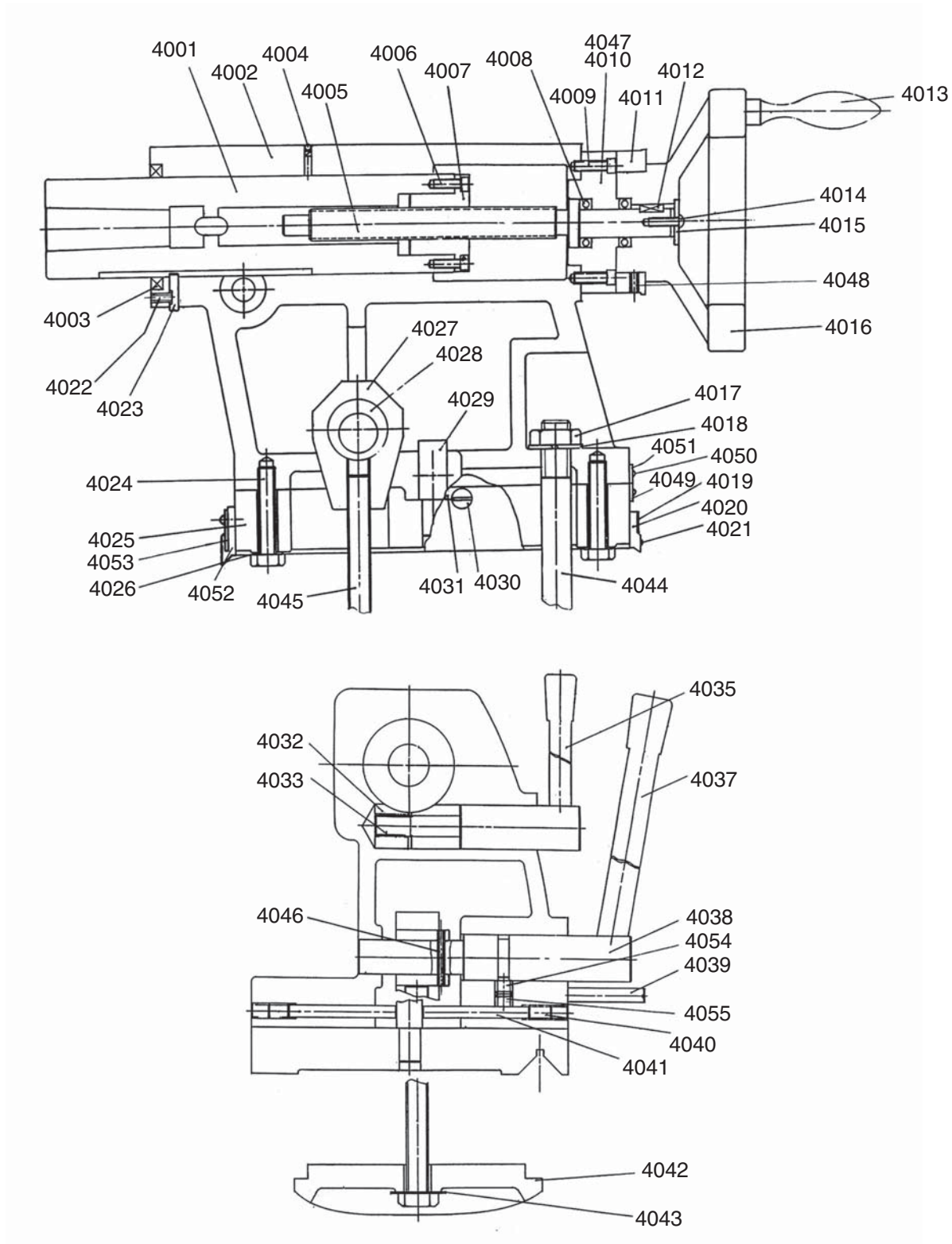
REF	PART #	DESCRIPTION
3100	PLW06M	LOCK WASHER 10MM
3101	PN02M	HEX NUT M10-1.5
3102	P06003102	DOWEL PIN 3 X 8MM
3103	P06003103	GEAR 16T X M2
3104	P06003104	SPACER
3105	PSB38M	CAP SCREW M5-.8 X 25
3106	P06003106	INDICATOR PLATE
3107	P06003107	INDICATOR PLATE
3108	P06003108	FEMALE KNOB M10-1.5
3109	PS38M	PHLP HD SCR M4-.7 X 10

REF	PART #	DESCRIPTION
3110	P06003110	INDICATOR PLATE
3111	P06003111	SPACER
3112	P06003112	FLAT SPRING
3113	P06003113	COMPRESSION SPRING
3114	PN01M	HEX NUT M6-1
3115	PSS25M	SET SCREW M6-1 X 20
3116	P06003116	BALL OILER
3117	PS52M	PHLP HD SCR M4-.7 X 20
3118	P06003118	SHOULDER WASHER
3119	P06003119	INDICATOR PLATE



Tailstock

(4000 Series Parts)



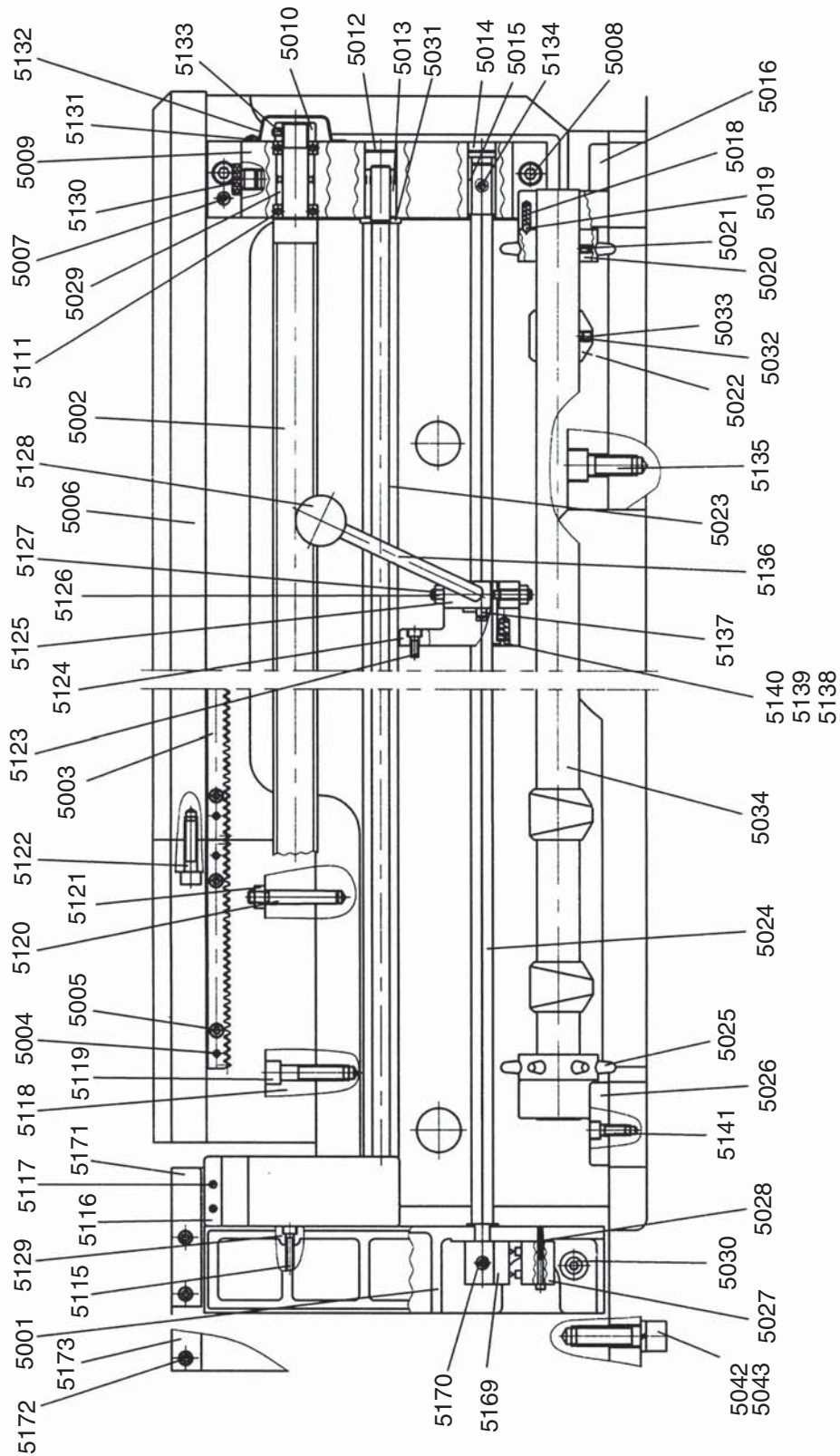
REF	PART #	DESCRIPTION
4001	P06004001	QUILL
4002	P06004002	TAILSTOCK BODY
4003	P06004003	OIL SEAL
4004	P06004004	BALL OILER
4005	P06004005	FEED SCREW (INCH)
4006	PSB01M	CAP SCREW M6-1 X 16
4007	P06004007	FEED NUT (INCH)
4008	P06004008	THRUST BEARING 8105
4009	PSB01M	CAP SCREW M6-1 X 16
4010	P06004010	END CAP
4011	P06004011	DIAL-FEED (INCH)
4012	PK07M	KEY 6 X 6 X 20MM
4013	P06004013	HANDLE
4014	PS22M	PHLP HD SCR M5-.8 X 25
4015	P06004015	FLAT WASHER
4016	P06004016	HANDLE WHEEL
4017	PN28M	HEX NUT M20-2.5
4018	PLW07M	LOCK WASHER 20MM
4019	P06004019	WIPER RETAINER
4020	P06004020	RUBBER WIPER
4021	PS02M	PHLP HD SCR M4-.7 X 12
4022	PSB04M	CAP SCREW M6-1 X 10
4023	P06004023	PIN SHAFT
4024	PB140M	HEX BOLT M12-1.75 X 70
4025	P06004025	TAILSTOCK BASE
4026	PLW05M	LOCK WASHER 12MM
4027	P06004027	BOLT-CLAMP

REF	PART #	DESCRIPTION
4028	P06004028	SLEEVE
4029	P06004029	ADJUSTMENT BLOCK
4030	P06004030	SPECIAL SCREW
4031	P06004031	GIB
4032	P06004032	CLAMP BLOCK
4033	P06004033	SHAFT
4035	P06004035	LEVER
4037	P06004037	LEVER
4038	P06004038	SHAFT
4039	P06004039	SPECIAL SCREW
4040	PSS65M	SET SCREW M16-2 X 20
4041	P06004041	SHAFT
4042	P06004042	CLAMP SHOE
4043	PLW07M	LOCK WASHER 20MM
4044	P06004044	HEX BOLT M20-2.5 X 150
4045	P06004045	HEX BOLT M20-2.5 X 100
4046	PRP31M	ROLL PIN 6 X 36MM
4047	P06004047	BALL OILER
4048	PSS24M	SET SCREW M5-.8 X 25
4049	P06004049	SCALE PLATE
4050	P06000141	RIVET 2 X 5MM
4051	P06004051	SCALE PLATE
4052	P06004052	RUBBER WIPER
4053	P06004053	WIPER PLATE
4054	PSB62M	CAP SCREW M10-1.5 X 12
4055	PSS30M	SET SCREW M10-1.5 X 10



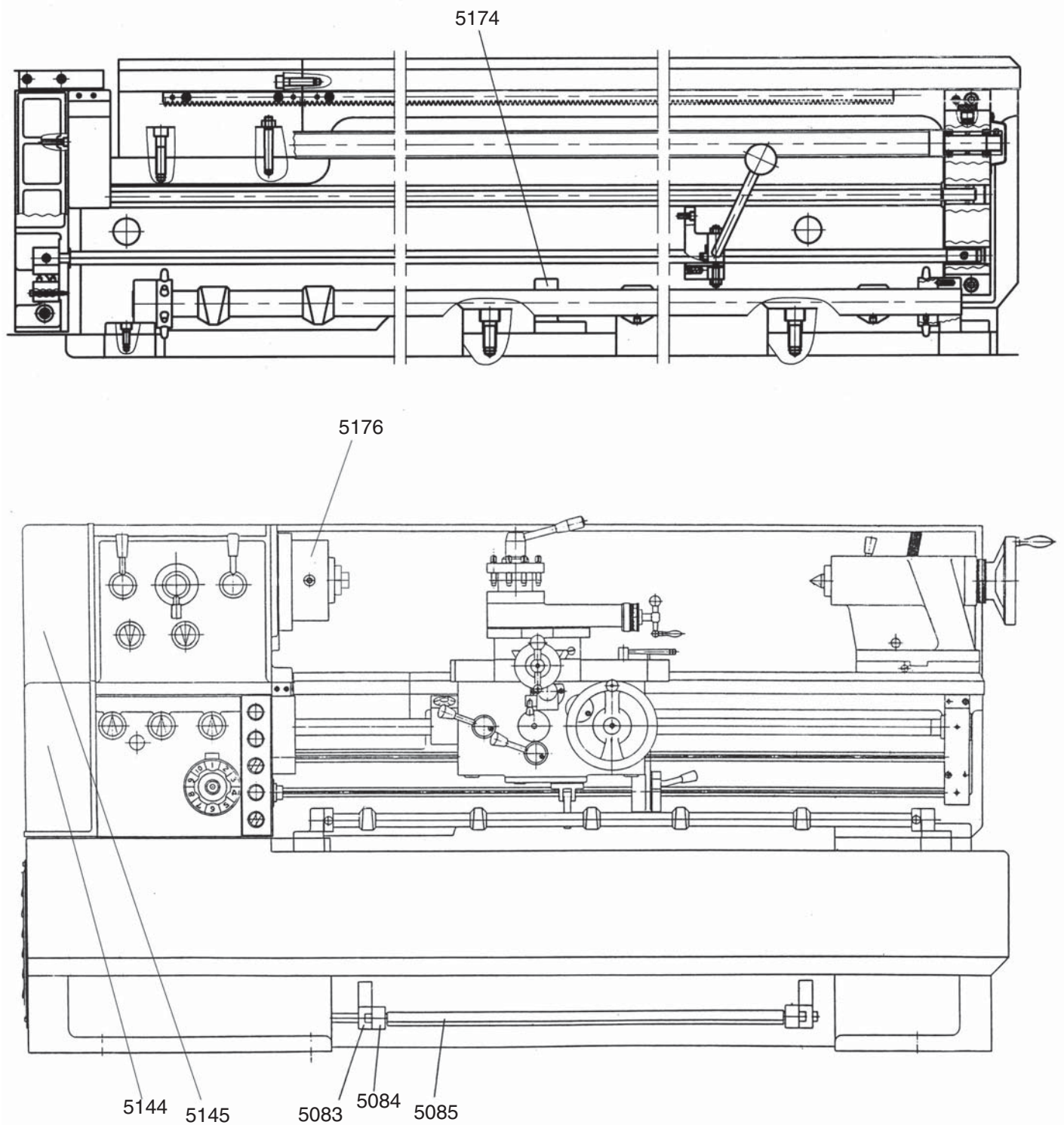
Bed Assembly

(5000 Series Parts)



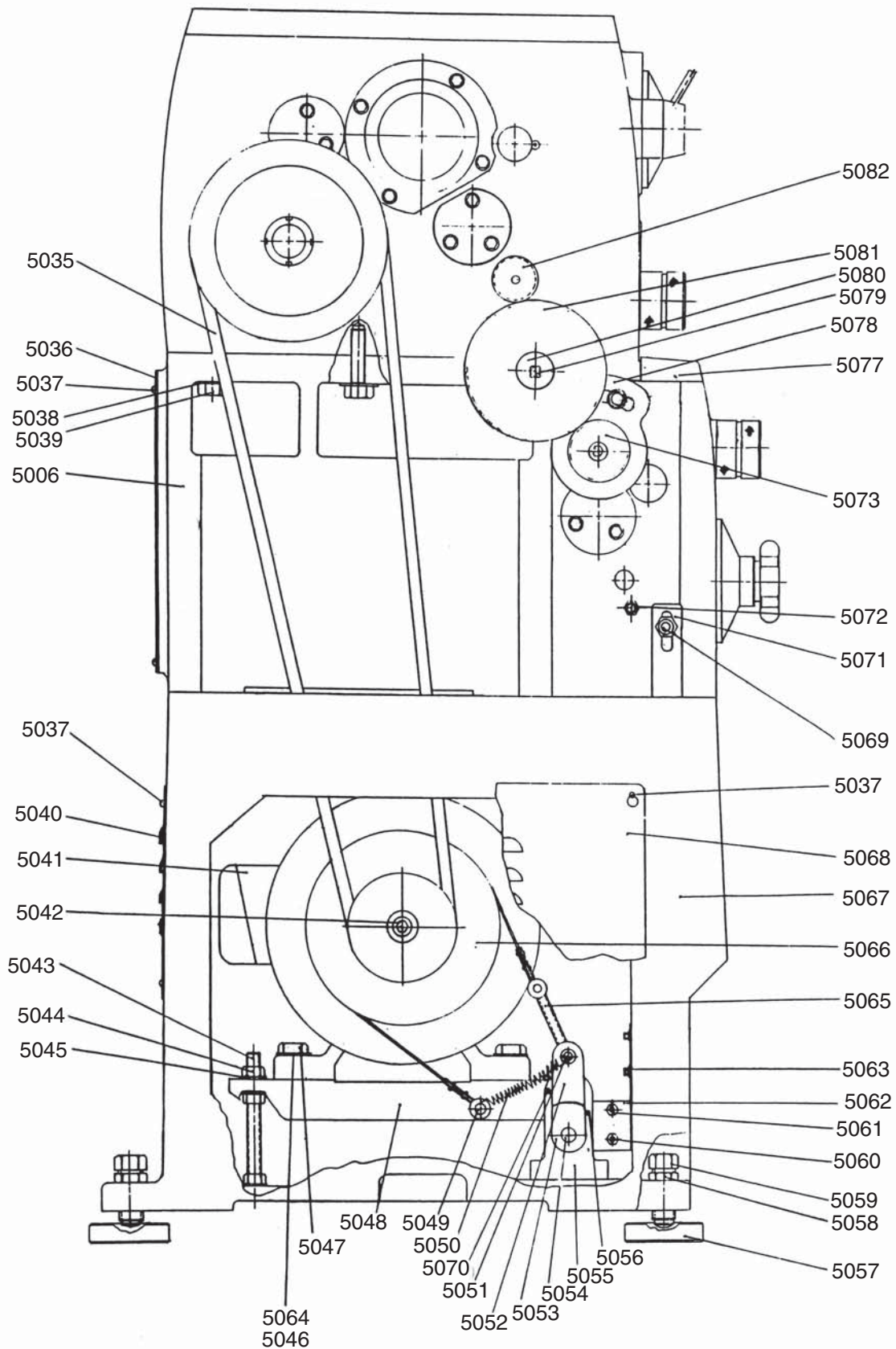
Brake Pedal and Headstock Panels

(5000 Series Parts)



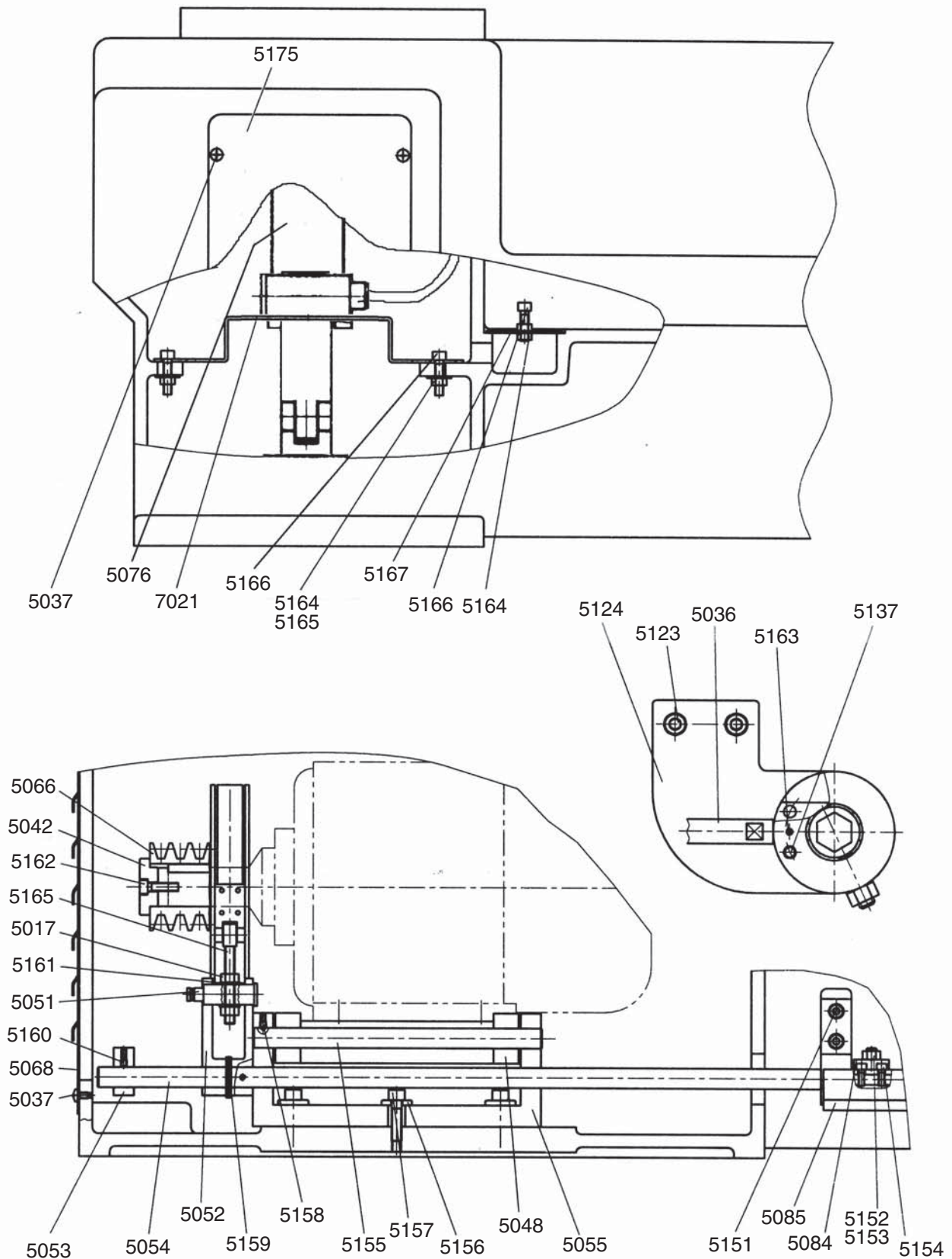
Brake System and Change Gears

(5000 Series Parts)



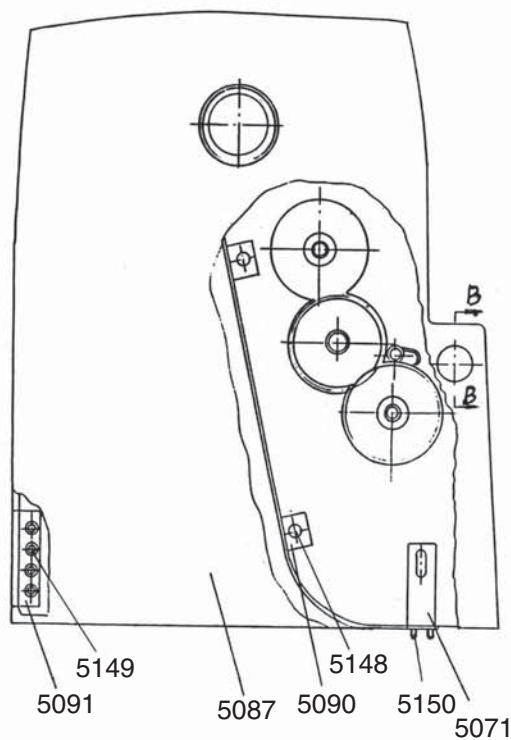
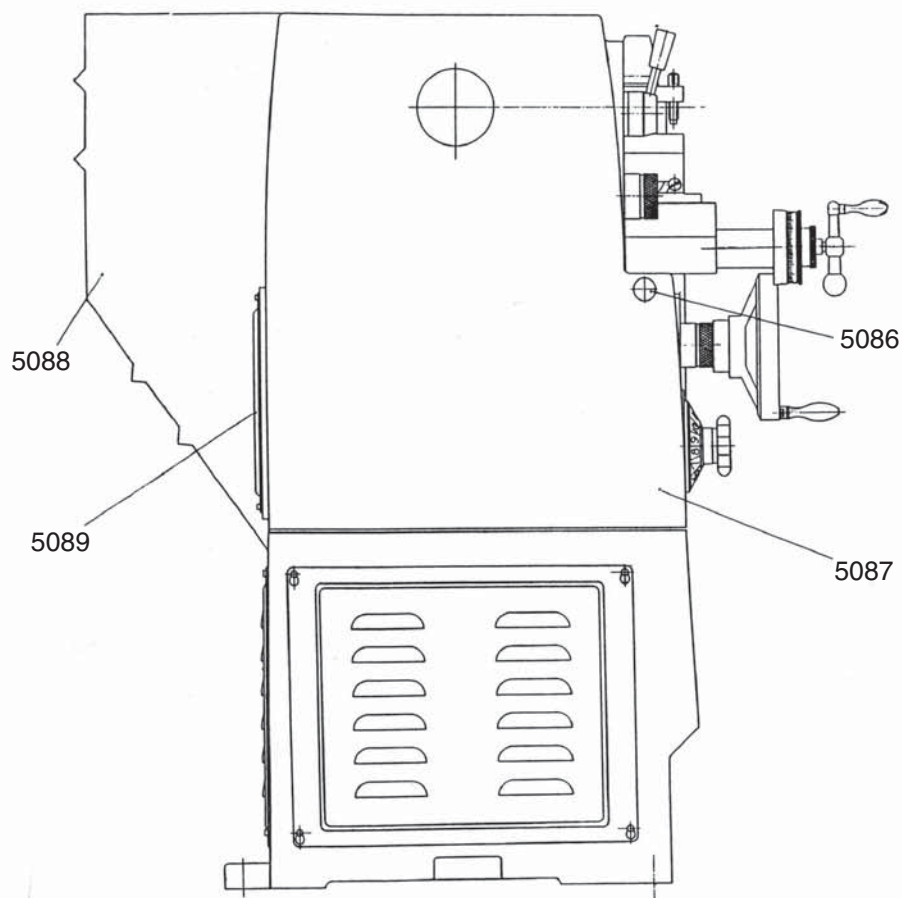
Motor and Headstock Mounting

(5000 Series Parts)



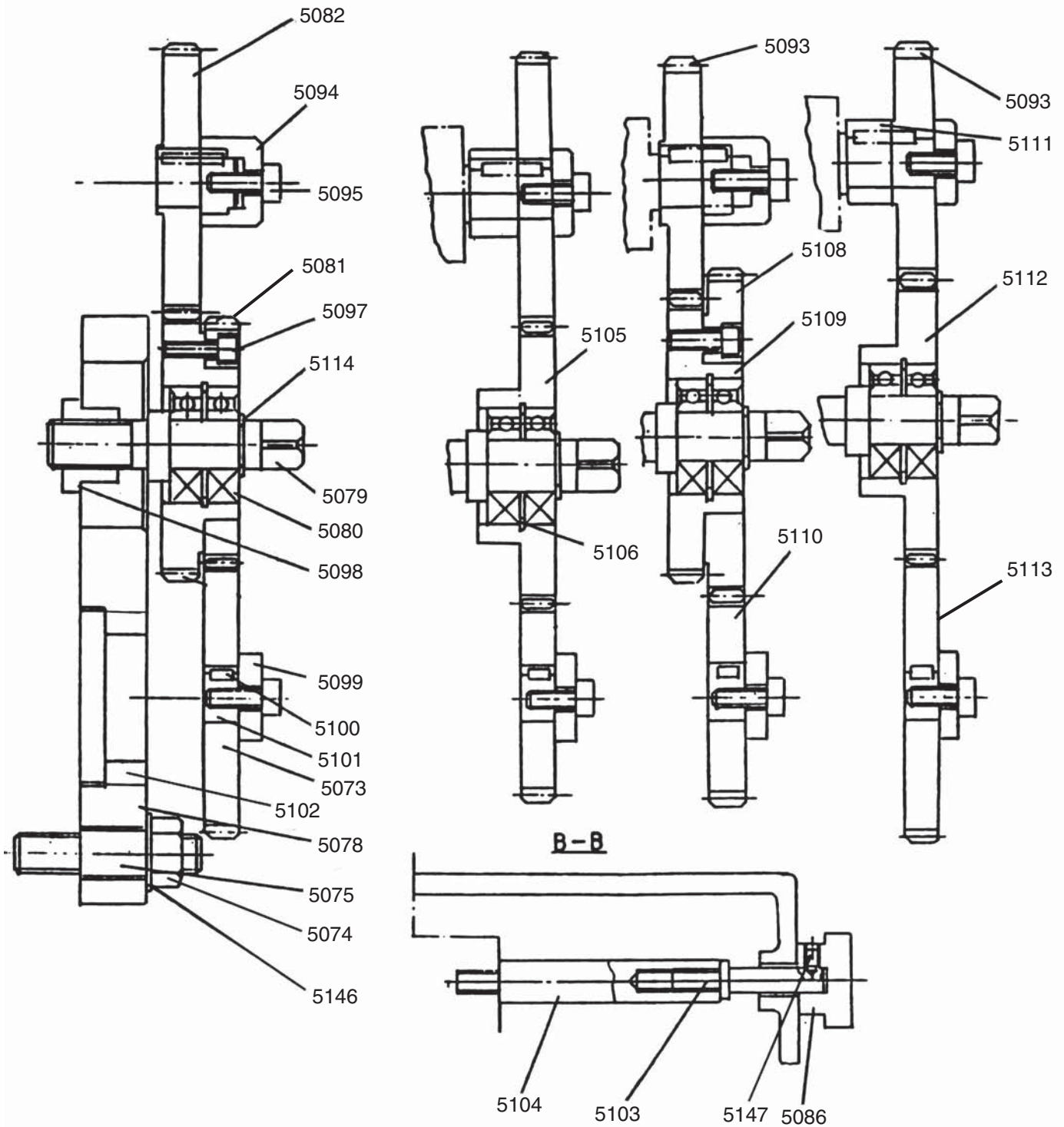
End Covers and Splash Guard

(5000 Series Parts)



Change Gear System

(5000 Series Parts)



REF	PART #	DESCRIPTION
5001	P06005001	SWITCH SEAT
5002	P06005002	LEAD SCREW (INCH)
5003	P06005003	RACK
5004	PRP05M	ROLL PIN 5 X 30MM
5005	PSB06M	CAP SCREW M6-1 X 25
5006	P06005006	BED
5007	P06005007	TAPER PIN 10 X 45MM
5008	PSB47M	CAP SCREW M10-1.5 X 40
5009	P06005009	HOUSING
5010	P06005010	BARREL NUT
5011	P06004008	THRUST BEARING 8105
5012	P06005012	PLUG
5013	P06005013	BUSHING
5014	P06005014	PLUG
5015	P06005015	BUSHING
5016	P06005016	BRACKET
5017	PN02M	HEX NUT M10-1.5
5018	P06005018	COMPRESSION SPRING
5019	P06005019	STEEL BALL 6MM
5020	P06005020	STAR DIAL
5021	PSB68M	CAP SCREW M6-1 X 8
5022	P06005022	CAM
5023	P06005023	FEED ROD
5024	P06005024	START ROD
5025	P06005025	STAR DIAL
5026	P06005026	BRACKET
5027	P06005027	LIMIT SWITCH
5028	PS65M	PHLP HD SCR M4-.7 X 40
5029	P06005029	LIGHT SEAT
5030	PSB31M	CAP SCREW M8-1.25 X 25
5031	P06005031	SPACER
5032	P06005032	CLAMP SHOE
5033	P06005033	CAP SCREW M8-1.25 X 6
5034	P06005034	AUTO STOP ROD
5035	P06005035	V-BELT B76
5036	P06005036	CONDUIT
5037	PS03M	PHLP HD SCR M6-1 X 8
5038	PLW10M	LOCK WASHER 16MM
5039	PB80M	HEX BOLT M16-2 X 55
5040	P06005040	MOTOR COVER
5041	P06005041	MOTOR
5042	P06005042	SHOULDER WASHER
5043	P06005043	CAP SCREW
5044	PN13M	HEX NUT M16-2
5045	PW08M	FLAT WASHER 16MM
5046	PLW06M	LOCK WASHER 10MM
5047	PB14M	HEX BOLT M10-1.5 X 35
5048	P06005048	MOTOR SEAT

REF	PART #	DESCRIPTION
5049	P06005049	SHAFT
5050	P06005050	TENSION SPRING
5051	P06005051	SHAFT
5052	P06005052	BRAKE LEVER
5053	P06005053	CAM
5054	P06005054	SHAFT
5055	P06005055	MOTOR SEAT BRACKET
5056	P06005056	LIMIT SWITCH
5057	P06005057	LEVELING BLOCK
5058	P06005058	SPECIAL NUT M24-2
5059	P06005059	FOOT STUD
5060	PS52M	PHLP HD SCR M4-.7 X 20
5061	PN04M	HEX NUT M4-.7
5062	P06005062	LIMIT SWITCH SEAT
5063	PS09M	PHLP HD SCR M5-.8 X 10
5064	PW04M	FLAT WASHER 10MM
5065	P06005065	BRAKE BAND ASSY
5066	P06005066	PULLEY
5067	P06005067	STAND
5068	P06005068	MOTOR COVER
5069	P06005069	LIMIT SWITCH
5070	PS05M	PHLP HD SCR M5-.8 X 8
5071	P06005071	LIMIT SWITCH SEAT
5072	P06005072	DOOR LOCK STUD
5073	P06005073	GEAR 56T X 2.25
5074	PN13M	HEX NUT M16-2
5075	P06005075	STUD
5077	P06005077	TOP COVER
5078	P06005078	SWING BRACKET
5079	P06005079	SPINDLE STUD
5080	P06005080	BALL BEARING 16204
5081	P06005081	GEAR 49T X 2.25
5082	P06005082	GEAR 55T X 2.25
5083	P06005083	BRACKET
5084	P06005084	ARM
5085	P06005085	BRAKE PEDAL
5086	P06005086	THUMB KNOB
5087	P06005087	SAFETY DOOR
5088	P06005088	GUARD ASSEMBLY
5089	P06005089	COVER
5090	P06005090	OIL GUARD
5091	P06005091	HINGE
5093	P06005093	GEAR 48T X 2.25
5094	P06005094	SPACER
5095	PSB14M	CAP SCREW M8-1.25 X 20
5097	PSB04M	CAP SCREW M6-1 X 10
5098	P06005098	SPACER
5099	P06005099	SPACER



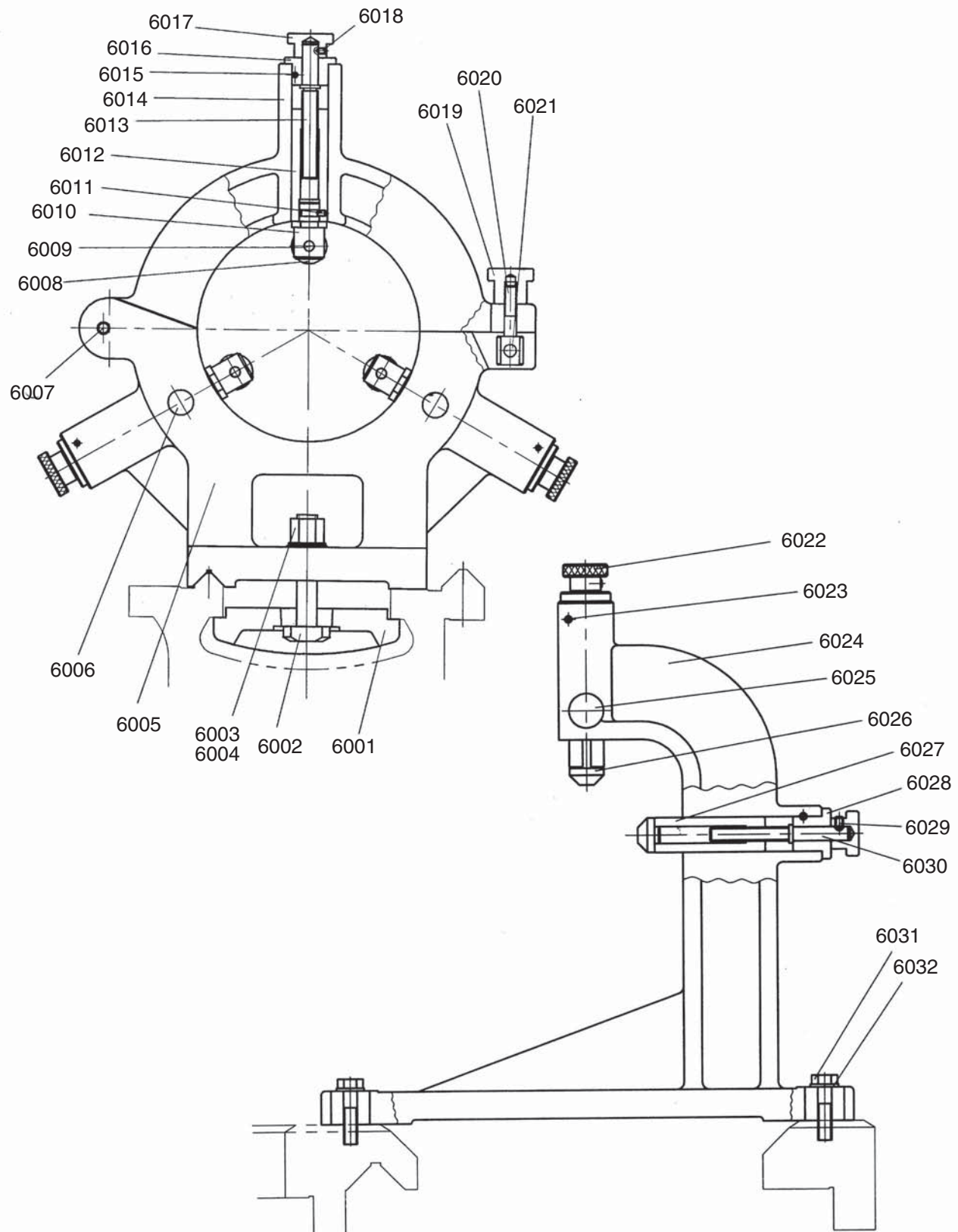
REF	PART #	DESCRIPTION
5100	PK95M	KEY 6 X 6 X 10MM
5101	P06005101	SHAFT
5102	P06005102	SPACER
5103	P06005103	SPECIAL SCREW
5104	P06005104	SPECIAL SCREW
5105	P06005105	GEAR 57T X 2.25
5106	P06005106	EXT RETAINING RING 47MM
5108	P06005108	GEAR 66T X 2.25
5109	P06005109	GEAR 57T X 2.25
5110	P06005110	GEAR 42T X 2.25
5111	P06005111	SPACER
5112	P06005112	GEAR 57T X 2.25
5113	P06005113	GEAR 57T X 2.25
5114	PR09M	EXT RETAINING RING 20MM
5115	P06005115	STUD
5116	P06005116	THREADING PLATE
5117	PS05M	PHLP HD SCR M5-.8 X 8
5118	P06005118	BED GAP
5119	PSB73M	CAP SCREW M12-1.75 X 50
5120	P06005120	BOLT PIN 10 X 75MM
5121	PN02M	HEX NUT M10-1.5
5122	PSB47M	CAP SCREW M10-1.5 X 40
5123	PSB01M	CAP SCREW M6-1 X 16
5124	P06005124	BRACKET
5125	P06005125	BRACKET
5126	PSS19M	SET SCREW M8-1.25 X 30
5127	PN03M	HEX NUT M8-1.25
5128	P06005128	FEMALE KNOB M8-1.25
5129	P06005129	BUSHING
5130	P06005130	OIL PLUG
5131	PS05M	PHLP HD SCR M5-.8 X 8
5132	P06005132	COVER
5133	PSS03M	SET SCREW M6-1 X 8
5134	PSB68M	CAP SCREW M6-1 X 8
5135	PSB48M	CAP SCREW M6-1 X 35
5136	P06005136	LEVER
5137	P06005137	GUIDE PIN
5138	P06005138	LOCK WASHER

REF	PART #	DESCRIPTION
5139	P06005139	COMPRESSION SPRING
5140	P06005140	BUSHING
5141	PSB14M	CAP SCREW M8-1.25 X 20
5142	P06005142	CAP SCREW M16-2 X 55
5143	PLW10M	LOCK WASHER 16MM
5144	P06005144	WARNING PLATE
5145	P06005145	THREADING CHART PLATE
5146	PLW10M	LOCK WASHER 16MM
5147	PSS03M	SET SCREW M6-1 X 8
5148	PSB26M	CAP SCREW M6-1 X 12
5149	PS09M	PHLP HD SCR M5-.8 X 10
5150	PSB01M	CAP SCREW M6-1 X 16
5151	PSB14M	CAP SCREW M8-1.25 X 20
5152	PN02M	HEX NUT M10-1.5
5153	PSB64M	CAP SCREW M10-1.5 X 25
5154	PSB01M	CAP SCREW M6-1 X 16
5155	P06005155	SHAFT
5156	PLW06M	LOCK WASHER 10MM
5157	PSB47M	CAP SCREW M10-1.5 X 40
5158	PS03M	PHLP HD SCR M6-1 X 8
5159	PRP28M	ROLL PIN 5 X 40MM
5160	PSB26M	CAP SCREW M6-1 X 12
5161	PLW06M	LOCK WASHER 10MM
5162	PSB13M	CAP SCREW M8-1.25 X 30
5163	PRP42M	ROLL PIN 3 X 20MM
5164	PN03M	HEX NUT M8-1.25
5165	PLW04M	BELT BRAKE
5166	PSB13M	CAP SCREW M8-1.25 X 30
5167	P06005167	SCREEN
5168	P06005168	COOLANT PUMP BASE
5169	P06005169	CAM
5170	PSB26M	CAP SCREW M6-1 X 12
5171	P06005171	BLOCK
5172	PSB06M	CAP SCREW M6-1 X 25
5173	P06005173	BLOCK
5174	P06005174	STAR TYPE RING
5175	P06005175	PUMP COVER
5176	P06005176	3-JAW CHUCK



Steady and Follow Rests

(6000 Series Parts)



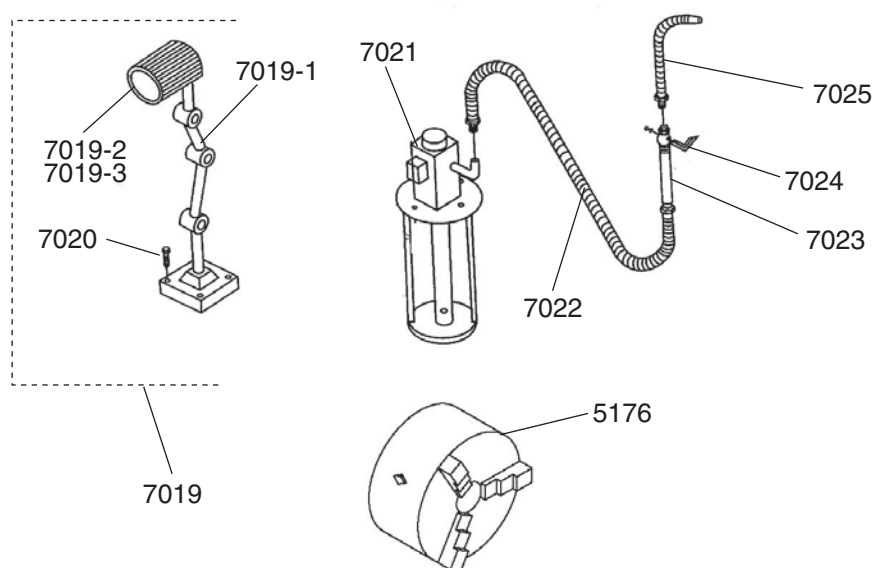
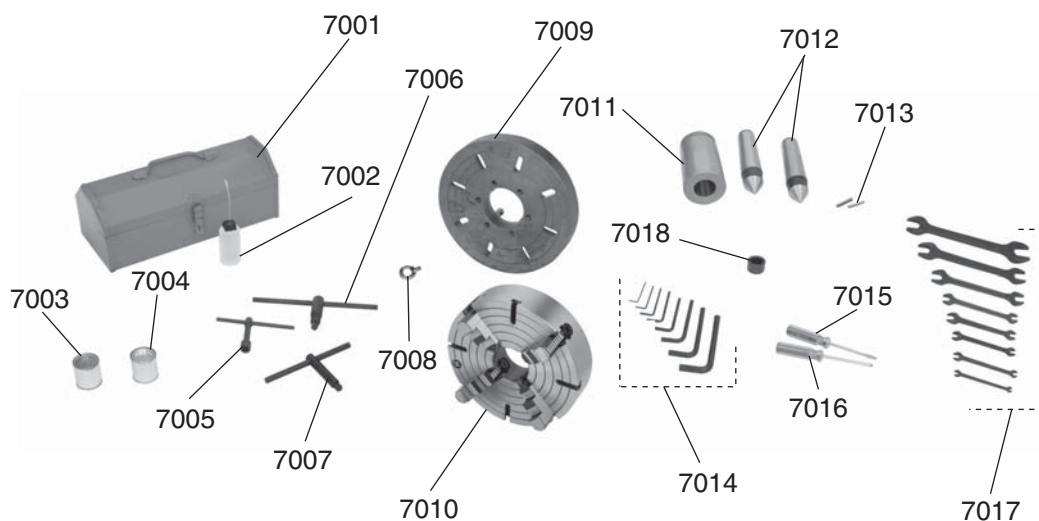
REF	PART #	DESCRIPTION
6001	P06006001	CLAMPING BRACKET
6002	P06006002	HEX BOLT M20-2.5 X 110
6003	P06006003	SPECIAL NUT M20-1.5
6004	PLW07M	LOCK WASHER 20MM
6005	P06006005	STEADY REST BASE
6006	P06006006	LIMIT SCREW
6007	P06006007	DOWEL PIN 10 X 60MM
6008	P06006008	BALL BEARING 180300
6009	P06006009	GUIDE PIN
6010	P06006010	SUPPORT SHAFT
6011	PSB68M	CAP SCREW M6-1 X 8
6012	P06006012	SLEEVE
6013	P06006013	SHAFT
6014	P06006014	UPPER CASTING
6015	PRP30M	ROLL PIN 5 X 50MM
6016	P06006016	BUSHING

REF	PART #	DESCRIPTION
6017	P06006017	ADJUSTMENT KNOB
6018	PSS03M	SET SCREW M6-1 X 8
6019	P06006019	LOCK KNOB
6020	P06006020	CLAMP SCREW
6021	P06006021	DOWEL PIN 10 X 60MM
6022	P06006022	ROTATE HANDLE
6023	PRP26M	ROLL PIN 5 X 26MM
6024	P06006024	FOLLOW REST
6025	P06006025	LIMIT SCREW
6026	P06006026	BRACKET
6027	P06006027	SLEEVE
6028	P06006028	BUSHING
6029	P06006029	SPECIAL SCREW
6030	P06006030	SHAFT
6031	PB31M	HEX BOLT M10-1.5 X 40
6032	PLW06M	LOCK WASHER 10MM



Accessories, Coolant, and Lighting System

(7000 Series Parts)



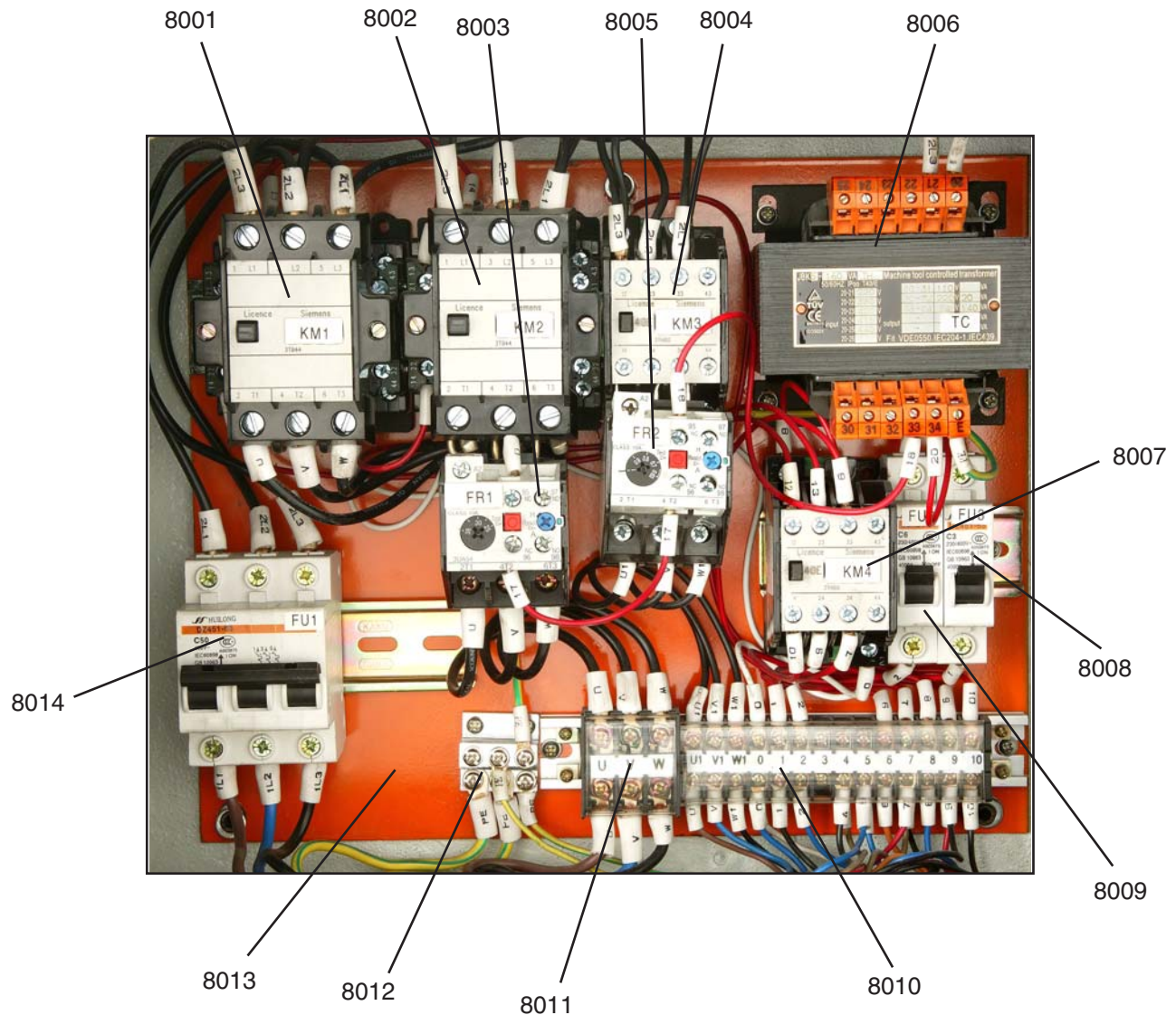
REF	PART #	DESCRIPTION
7001	P06007001	TOOL BOX
7002	P06007002	OIL BOTTLE
7003	P06007003	GREEN SPOT PAINT
7004	P06007004	PUTTY SPOT PAINT
7005	P06007005	TOOL POST WRENCH
7006	P06007006	4-JAW CHUCK WRENCH
7007	P06007007	3-JAW CHUCK WRENCH
7008	P06007008	4-JAW CHUCK LIFT EYE
7009	P06007009	18" FACE PLATE
7010	P06007010	4-JAW CHUCK
7011	P06007011	MT#7-5 TAPERED SPINDLE SLEEVE
7012	P06007012	MT#5 DEAD CENTER
7013	P06007013	FEED ROD/LEAD SCREW SHEAR PIN
7014	P06007014	HEX WRENCH SET 1.5-10

REF	PART #	DESCRIPTION
7015	P06007015	#2 STANDARD SCREW DRIVER
7016	P06007016	#2 PHILLIPS SCREW DRIVER
7017	P06007017	COMBO WRENCH SET 6-30
7018	P06007018	GAP PULLER HUB
7019	P06007019	LAMP ASSEMBLY
7019-1	P06007019-1	BASE AND ARM ASSEMBLY
7019-2	P06007019-2	LENSE
7019-3	P06007019-3	BULB 24V-50W
7020	PSB06M	CAP SCREW M6-1 X 25
7021	P06007021	MOTOR AND PUMP ASSY
7022	P06007022	SUPPLY FLEX TUBE
7023	P06007023	STANDOFF PIPE
7024	P06007024	FLOW VALVE
7025	P06007025	NOZZLE AND FLEX TUBE



Main Electrical Box

(8000 Series Parts)



REF	PART #	DESCRIPTION
8001	P06008001	CONTACTOR (3TB44)
8002	P06008002	CONTACTOR (3TB44)
8003	P06008003	THERMAL RELAY (SETTING: 32A)
8004	P06008004	CONTACTOR (40E, 3TH80)
8005	P06008005	THERMAL RELAY (SETTING: 1A)
8006	P06008006	TRANSFORMER (JBK50160-VATH)
8007	P06008007	CONTACTOR (40E, 3TH80)
8008	P06008008	CIRCUIT BREAKER (3A, 400VAC)

REF	PART #	DESCRIPTION
8009	P06008009	CIRCUIT BREAKER (6A, 400VAC)
8010	P06008010	MAIN TERMINAL BOARD
8011	P06008011	MOTOR TERMINAL BOARD
8012	P06008012	GROUND TERMINAL BOARD
8013	P06008013	MOUNTING PANEL
8014	P06008014	MASTER CIRCUIT BREAKER (50A, 400VAC)



WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

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Thank you again for your business and continued support. We hope to serve you again soon.





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Model # _____ Order # _____ Serial # _____

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1. How did you learn about us?

_____ Advertisement

_____ Friend

_____ Catalog

_____ Card Deck

_____ Website

_____ Other:

2. Which of the following magazines do you subscribe to?

_____ Cabinet Maker

_____ Popular Mechanics

_____ Today's Homeowner

_____ Family Handyman

_____ Popular Science

_____ Wood

_____ Hand Loader

_____ Popular Woodworking

_____ Wooden Boat

_____ Handy

_____ Practical Homeowner

_____ Woodshop News

_____ Home Shop Machinist

_____ Precision Shooter

_____ Woodsmith

_____ Journal of Light Cont.

_____ Projects in Metal

_____ Woodwork

_____ Live Steam

_____ RC Modeler

_____ Woodworker West

_____ Model Airplane News

_____ Rifle

_____ Woodworker's Journal

_____ Modeltec

_____ Shop Notes

_____ Other:

_____ Old House Journal

_____ Shotgun News

3. What is your annual household income?

_____ \$20,000-\$29,000

_____ \$30,000-\$39,000

_____ \$40,000-\$49,000

_____ \$50,000-\$59,000

_____ \$60,000-\$69,000

_____ \$70,000+

4. What is your age group?

_____ 20-29

_____ 30-39

_____ 40-49

_____ 50-59

_____ 60-69

_____ 70+

5. How long have you been a woodworker/metalworker?

_____ 0-2 Years

_____ 2-8 Years

_____ 8-20 Years

_____ 20+ Years

6. How many of your machines or tools are Grizzly?

_____ 0-2

_____ 3-5

_____ 6-9

_____ 10+

7. Do you think your machine represents a good value?

_____ Yes

_____ No

8. Would you recommend Grizzly Industrial to a friend?

_____ Yes

_____ No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

Note: We never use names more than 3 times.

_____ Yes

_____ No

10. Comments: _____

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